RAILWAY MAIL SERVICE:
A COMPARATIVE STUDY OF RAILWAY RATES AND SERVICE

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BY

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TABLE OF CONTENTS.

PREFACE

The articles brought together to form this volume have been published from time to time during the past three years, most of them appearing in the Journal of Political Economy. Their publication now in more convenient form is due to the continued demand for them. Although nominally disconnected I believe they will not be found to be wholly wanting in continuity. The occasion that called them forth has passed but I hope they contain sufficient material of more than ephemeral value to be worthy of the more permanent form in which they now appear.

No alteration of any importance has been made in the text, but some new matter has been added. It is believed the tables in the appendix contain the most useful of the voluminous statistical matter prepared for the Joint Congressional Commission on Postal Affairs created by the act of Congress approved June 13, 1898. In reprinting these statistics I assume no responsibility for their accuracy.

G. G. T.

CHICAGO, ILLINOIS,
March 18, 1901.

STATEMENT SUBMITTED TO THE POSTAL COMMISSION

RAILWAY MAIL SERVICE

STATEMENT SUBMITTED TO THE JOINT CONGRESSIONAL COMMISSION ON POSTAL AFFAIRS[1]

It has been contended with such persistence that many believe it to be true, that the railroads receive excessive compensation for carrying the mails. Statements of the services rendered and of the pay received have been wide of the truth; in fact, this departure has generally been so palpable it was believed these misrepresentations carried with them their own condemnation, and thus no formal refutation was necessary. Recently, however, these attacks have been renewed, and have appeared in periodicals of such high standing as to give them credence, especially as the railroads have made no replies which have gained more than a limited circulation. This being the situation, the appointment of this Commission was welcomed by the Chicago and North-Western Railway Company. It was believed that the railroads would be given an impartial hearing, and that they could fur-

[1] This argument was presented in Chicago on November 21, 1898. Since then it has been largely reproduced by different persons, but proper acknowledgment has seldom been made. Professor H. T. Newcomb, in compiling his work entitled *The Postal Deficit*, drew upon it freely. Attention will later be directed to a few of these appropriations.

nish such evidence that the finding of the Commission would do far more, than they could hope to do directly, to convince the people that the railroads were not receiving excessive compensation for the services they rendered. Realizing the importance, not only to ourselves but to the community as well, of the report you will lay before Congress, we have sought to make our statement as full as circumstances permitted.

Before considering the question whether or not the railways receive excessive pay for carrying the mail, it will probably be helpful to state the different ways in which mail is carried, and the forms and rates of compensation. There are two forms of service—(1) the pouch (or closed mail) service and (2) the apartment and railway post-office car service. The distinction turns upon the place where the mail is separated. In the service of the first kind the mail is distributed in stationary post-offices of the cities along the route and is hauled in baggage cars in closed pouches. In the service of the second kind, which has steadily supplanted that of the first, the mail is separated after it reaches the cars. In this change in the place of separation we have the most important departure that has been made in the handling of mail since the postal service was inaugurated on the railroads. This innovation has contributed more to the expeditious delivery of mail than all the other improvements in the Post-Office Department combined. The public knows the benefits it derives from separation in the cars, but it is not aware of the additional cost that this entails upon

the railways. It necessitates the car being fitted up with every convenience that will facilitate assortment. Much more important, however, than the equipment of the cars is the extra car space which must be provided for a given weight of mail. As the mail clerks must have room enough to work effectively, the storage space of the cars is greatly reduced. Mr. W. S. Shallenberger, Second Assistant Postmaster-General, recently stated that two-thirds of the car space are occupied by racks, cases, tables, and other conveniences of separation.[1]

Corresponding to these two forms of service are two forms of pay.[2] In early days the mail was carried in closed pouches in baggage cars, and the compensation was based almost solely upon weight. A single form of payment continued for some years after the railway post-offices were introduced, but Congress finally recognized the justice of the contentions of the railways and allowed those carrying the mails in postal cars additional pay for the extra service rendered in providing sufficient space for the distribution of the mails in transit.[3]

[1] 55th Cong., 2d Sess., Senate Rpt., No. 991, p. 120.

[2] There is still another form of pay, known as "special facility pay," which is received by a few railroads for "special" service.

[3] This statement is only in part true. No extra pay is allowed for apartment car service, and this in face of the fact that the mail is separated quite as minutely in the apartment as in the exclusive mail cars. The disproportion between the space used and the weight carried, it is safe to say, is as great in the former as in the latter. If a test were made it would probably be found to be much greater, because the space required for separation does not increase so rapidly as the weight. It is difficult to understand why apartments up to forty feet in length, devoted exclusively to mail, should not be paid for while cars forty feet or more in length are paid for. The discrimination has no logical basis; it is wholly arbitrary.

The present plan of paying the railroads on the basis of weight and cars furnished was established by the act of March 3, 1873. The amount of compensation based on the weight carried has, however, been twice reduced—10 per cent by the act of July 12, 1876, and 5 per cent by the act of June 17, 1878. In addition to these reductions the compensation of land grant railroads was reduced 20 per cent below that of other railways by the act of July 12, 1876. The maximum rates now paid on the basis of weight carried are shown in the subjoined table:

RATES BASED ON THE WEIGHT OF THE MAILS.[1]

Average Daily Weight of Mails over Whole Route.	Present Pay per Mile per Annum.	Present Rate per Ton per Mile.[2]
200 pounds	$42.75	$1.171
500 "	64.12	.702
1000 "	85.50	.468
1500 "	106.87	.390
2000 "	128.25	.351
3500 "	149.62	.234
5000 "	171.00	.187
Each 2000 pounds in excess of 5000 pounds	21.37	.058

The most striking feature of this table is the rapid decline in the rates paid with an increase of weight.

In addition to the above payments based upon weight there is a further allowance when full-sized railway post-office cars are provided—the Post-Office Department

[1] Land grant roads receive but 80 per cent of these rates.

[2] This is the rate received for carrying each ton handled one mile, and is obtained by dividing the yearly compensation by 365 and then dividing the daily compensation thus obtained by the number of tons carried one mile each day.

deciding when these are necessary. The rates of pay for these cars are as follows:

RATES ALLOWABLE FOR FULL-SIZED POST-OFFICE CARS.[1]

Length of Car.	Rate per Annum per Mile of Track.	Rate per Mile Run by Cars.
40 feet	$25.00	3.424 cents.
45 "	30.00	4.109 "
50 "	40.00	5.479 "
55 to 60 feet	50.00	6.849 "

The first column, which shows the rate paid per annum per mile of track, is likely to be misunderstood. The compensation seems very liberal, and it would be so in fact if it were as large as it appears to be. To gain $25 per mile per annum a forty-foot car must make a round trip over each mile of road per day. If it only makes one trip over the road each day it will earn but $12.50 per mile per annum, as it would be but half of what is known as a "line." The statute of March 3, 1873, reads: "That . . . pay may be allowed for every *line* comprising a daily trip *each way* of railway post-office cars, at a rate not exceeding $25 per mile per annum for cars forty feet in length. . . ."

It is often urged that the railroads should be paid no more for the use of post-office cars than the cost of maintaining and caring for them and a fair return upon their

[1] By full-sized cars is meant cars forty feet or more in length and wholly devoted to mail.

original cost. Such payment would be just if they were stationary post-offices and the Government provided trackage for them. But they are not stationary post-offices, and the compensation received for them must be regarded as in part a payment for hauling them with their load and the railway postal clerks in them. It was so considered when it was first granted. This additional compensation was made because Congress recognized that the separation of the mail in the cars necessitated the devotion of an unusual amount of car space to a given weight of mail. On this point, speaking for the sub-committee of the Select Committee on Transportation Routes to the Seaboard, which was investigating the transportion of mail, Senator Mitchell said, "Soon after the establishment of the post-office car service it became evident that the law of 1845, under which the payment to railroads for carrying the mail was based upon weight, did not provide for the post-office car service, the *space occupied*, instead of the *weight carried*, being the proper measure of the value of that service."[1] In other words, it was conceded by this committee that a wholly disproportionate amount of dead weight in the form of a car with its fittings was hauled for a given weight of mail.

When it is remembered what the Government demands from the railroads in the way of service the contention that the compensation should be very low is astonishing in extreme. The Government insists that the mail trains

[1] 43d Cong., 1st Sess., Senate Rpt. 478, p. 8. The italics appear in the report.

must be given the right of way over all other trains; the Government insists that the mail must go on the fastest trains; the Government insists that the mail must be carried upon any train the Post-Office Department may select; the Government insists that no mail may ever be left behind and that the railroads must always furnish sufficient car space regardless of the suddenness or unusualness of the demand that may be made; the Government insists that the mail cars must be furnished with the best appliances that art and science afford; the Government insists that the mail cars must be stationed where they can be easily and conveniently approached; the Government insists that the railroad carry the mails under certain conditions between its stations and the post offices, and finally, the Government insists that railroad employes give the mail their first attention on arrival of trains.[1] Thus at every point the Government says the mail must be given preference over all other traffic. These facts should not be overlooked in passing judgment on the reasonableness of the mail pay. They stamp as unreasonable the contention that the rates should be unusually low.

In answer to the statement that there must be a large profit in the mail traffic because the railroads compete for this business, it may be stated that railroads often compete for traffic that yields far from excessive returns.

[1] This summary of the demands of the Government has been frequently repeated, and is reprinted almost verbatim, but no credit given, by Professor H. T. Newcomb, on page 60 of his work just published, entitled *The Postal Deficit.*

They strive for traffic that will not yield any return upon the fixed capital invested in the railroad. They contend for traffic that will not even pay its proportion of the operating expenses of the railroad. Now, if railroads compete for traffic at rates that do not even equal the average cost of movement, and any well-informed person will concede that they do, the argument that the mere fact that the railroads compete for the mail business proves that the pay is excessive, falls to the ground.

The present basis of compensating the railways for carrying the mails was established by the act of March 3, 1873. The rates then fixed were shortly afterward twice reduced, 10 per cent by the act of July 12, 1876, and 5 per cent by the act of June 17, 1878. By the former of these two acts the compensation of land grant roads was further reduced 20 per cent below that of other railways. As the last reduction was made in 1878, there has been no reduction in the basis of compensation by new legislation in more than twenty years. Freight and passenger rates, and prices in general, have fallen during this interval, and it is now often stated that Congress ought, therefore, to cut down the mail pay. There is no reason, it is contended, why mail earnings should not have gone down hand in hand with freight and passenger earnings. If the mail pay was fair in 1878 and the character of the mail service has not improved more rapidly than the freight, express, and passenger service, this position would appear to be well taken. But these assumptions are not in consonance with the facts. The

rates established by the act of 1873 were accepted with great reluctance. After the reductions of 1876 and 1878 they were so far from remunerative that the railways were forced to curtail the service rendered, and were obliged to remove all trains run primarily to expedite the mails.[1] Then, too, there has been no other service that has been improved so rapidly as the mail service, both in the matter of speed and frequency. In 1879 our mail trains between Chicago and Council Bluffs averaged but twenty-two miles per hour, while they now average thirty-five miles per hour; our trains then made but 12.49 trips per week over this route, while they now make 42.28 trips per week.[2] The railroads have shown themselves willing to co-operate with the Post-Office Department in improving the mail service. No reasonable request has been refused by the railroads. In 1875, Postmaster-General Jewell said the railroads "are offering all the facilities at

[1] Mr. J. S. Tynor, Postmaster-General, said in referring to the removal of the fast mail trains after the reduction of 1876: "It was claimed by the railroad companies at the organization of this expedited distribution system that the rates of pay then provided by the existing law were insufficient to compensate them for the extraordinary expense incurred in running trains at such a speed, and there is good reason to believe that they offered their trains to the department as an experiment, out of a spirit of enterprise rather than an expectation of deriving an immediate profit therefrom."—Report of Postmaster-General, 1876, p. xxviii. See, also, letter to the Postmaster-General, discussing the question of compensation to the railroads for the transportation of the mails, by George S. Bangs, General Superintendent of the Railway Mail Service, 1874, pages 26 and 30; also, the letter of Postmaster-General Creswell, transmitting the report of Mr. Bangs to Mr. John B. Packer, chairman of the committee on the Post-Office and Post Roads of the House of Representatives. See, also, Senate Report No. 478, pp. 24 and 30, 43d Congress, 1st session, and a chapter by former Postmaster-General James in The American Railway, published by Charles Scribner's Sons, pp. 318-323.

[2] Report of Postmaster-General, 1879, p. 132, and Ibid, 1899, p. 538.

their command, and in a manner which indicates the utmost cordiality between them and the Government, and every disposition to advance the interests of the Department." [1] And in 1893 Postmaster-General Bissell reported that "so far as I have been able to acquaint myself with the details associated with the transportation of the mails by railroads, I am impressed favorably with the spirit of willingness on the part of railroad managers to co-operate with the Department in rendering the mail service effective." [2]

The railroads, however, do not rest their case solely upon the improvements they have introduced. Although there has been no reduction made by law (or accurately by new enactment) since 1878, the compensation given the railroads for carrying the mail has fallen very rapidly. This has come about automatically because of the operation of the sliding scale of payments introduced by the act of 1873. By referring to the table on page 16 it will be found that the rate of compensation granted decreases rapidly with an increase of weight. It will be noted that the pay for transporting mail on roads that carry 200 pounds or less per day was fixed at 117 cents per ton per mile, while that for carrying mail on roads that transport more than 5,000 pounds per day was fixed at but 5.8 cents for every ton in excess of 5,000 pounds, or less than $\frac{1}{20}$ of the first rate. The wholesale principle of fixing prices never received more drastic application.

[1] Ibid, 1875, p. xxvii.
[2] Ibid, 1893, p. xix.

During the last twenty years the weight of mail carried on practically all routes has increased rapidly. This increase of weight, through the operation of the statute, has automatically brought about a great reduction in the rates of compensation. Our average rate of earnings from the transportation of mail has fallen very much more than our average rate of earnings from passenger business, and almost as much as the average rate received from freight business. It has been possible to reduce freight rates because with an increase of business we have been able to distribute expenditures which increase slowly, if at all, with an increase of business, but which in the aggregate form a very large portion of our expenditures, over a much larger volume of business. It thus appears that the cause (*i. e.*, the increase) in the tonnage which, in the main, explains the decline of our freight rates, has also brought about a great reduction in the average rate of pay received for mail transportation. In the table on the next page I show how our mail earning per ton per mile have fallen with an increase of tonnage.

From this table it appears that our ton-mile earnings fell 46.80 per cent. from 1874 to 1897, and 39.73 per cent. from 1879 to 1897. In other words, from the time the last reduction in pay, made by specific act of Congress, went into effect, from which time it is popularly supposed no reduction in mail pay has been made, our average rate of earnings has fallen almost 40 per cent. No higher tribute than this could be paid

MAIL EARNINGS PER TON PER MILE.[1]

Government Fiscal Year.	Mileage Involved.	Earnings per Ton per Mile.
		Cents.
1874	1,857.9	26.07
1876	1,861.7	22.09
1877	1,902.9	21.40
1878	1,989.2	22.51
1879	2,096.6	23.01
1885	3,708.8	21.78
1890	4,135.6	19.07
1895	4,818.9	15.91
1896	4,856.8	13.85
1897	4,856.8	13.87

to the sagacity and foresight of the men who introduced the sliding scale into the act of 1873.

Since 1874, but more particularly since 1879, we have constructed a large amount of mileage in the Dakotas and in the sparsely settled districts of northern Wisconsin and the upper peninsula of Michigan. The mail on these new routes is very light, and consequently the rate per ton per mile is comparatively high. If it were not for the introduction of this new mileage into our system our earnings per ton per mile would have fallen even more rapidly than they did.[2] To show more accurately how the sliding scale of payment works automatically to bring about a reduction in the average rate of mail pay,

[1] The earnings given include all forms of payment, and no deductions whatever have been made. Eighteen hundred seventy-four was made the starting point because with the beginning of this fiscal year the act of 1873 went into operation. The data from which this table was compiled were obtained without exception from the annual reports of the Postmaster-General.

[2] Some idea of the growth of our system may be obtained from column two of the table just presented.

our earnings on two routes that have been operated during the entire period will be introduced. For this purpose the Chicago-Milwaukee and the Clinton-Anamosa routes have been selected. These routes are typical of the heavy and light routes.

EARNINGS PER TON PER MILE ON TWO MAIL ROUTES.[1]

Chicago-Milwaukee Route.		Clinton-Anamosa Route.	
Government Fiscal Year.	Earnings per Ton per Mile.	Government Fiscal Year.	Earnings per Ton per Mile.
	Cents.		Cents.
1874	33.34	1874	211
1879	29.61	1879	174
1885	16.10	1885	102
1890	14.50	1890	85
1895	12.54	1895	69
1897	8.65	1897	66

By the table just presented it appears that our ton-mile earnings on the Chicago-Milwaukee route fell 74.06 per cent. from 1874 to 1897 and 70.79 per cent. from 1879 to 1897, and that our ton-mile earnings on the Clinton-Anamosa route fell 68.73 per cent. from 1874 to 1897 and 62.07 per cent. from 1879 to 1897. From these percentages it may be inferred what the reduction in rates would have been if we had added no new mileage to our system in sparsely settled regions.

It has been shown what the absolute reductions in our mail earnings have been. Let us now contrast our mail with our freight and passenger earnings. It is usually

[1] The data used in obtaining these results were taken without exception from the annual reports of the Postmaster-General.

believed that freight and passenger rates have fallen much more rapidly than mail rates.

The facts for our system are disclosed by the following table:

FREIGHT, MAIL AND PASSENGER EARNINGS.

Year.	Freight. Average Rate per Ton per Mile.	Mail. Average Rate per Ton per Mile.	Passenger. Average Rate per Passenger per Mile.
	Cents.	Cents.	Cents.
1874	2.06	26.07	2.89
1877	1.75	21.40	2.72
1879	1.56	23.01	2.79
1885	1.19	21.78	2.38
1890	.98	19.07	2.17
1895	1.14	15.91	2.07
1896	1.03	13.85	2.05
1897	.99	13.87	2.04

To one not familiar with the sliding scale upon which mail payments are based the facts presented in this table must come with startling force. The decline stated in percentages for the whole period and for the period from 1879, when the last reduction by specific act went into effect, to 1897, is shown in the following table:

Period.	Decline of Freight Earnings.	Decline of Mail Earnings.	Decline of Passenger Earnings.
	Per cent.	Per cent.	Per cent.
Decline from 1874 to 1897----	51.94	46.80	29.42
Decline from 1879 to 1897----	36.54	39.73	26.85

Two points brought out by this table should be noted. The average rate of pay received for transportation of

mail has fallen almost as rapidly during the entire period as has the rate received for freight service, and much more rapidly than the rate received from passenger traffic, with which it is more comparable. From 1879 to 1897, during which time mail pay was not reduced by any new act of legislation, the average rate received for mail transportation fell somewhat faster than the average earnings received from freight and very much more rapidly than the average passenger rate.

On the basis of the exhibit from 1879 to 1897 it is felt that it can be confidently asserted that the mail earnings per ton per mile of all the railroads of the United States during that period have fallen more rapidly than have the average earnings received from freight and passenger business. This being the case, we should view as a grievous hardship any recommendation of a reduction by this Commission, simply because there has been no recent reduction by new legislation, and because the average rates received for freight and passenger transportation have steadily fallen. We respectfully submit that a careful investigation should first be made into the relative decline of mail, freight, and passenger earnings.[1] We do not accept the results of the computations that the opponents of railroads have made. For reasons that have already been given, and for others that will come

[1] On the request of the Commission, this investigation was later made by Professor Henry C. Adams, and it was found that the average mail rate in the United States decreased much more rapidly than the average passenger rate, but not quite so rapidly as the average freight rate—a very gratifying verification of my prediction.

to mind if a detailed examination of this subject be made, we cannot accept the data commonly used.

In the preceding pages we have clearly shown that the railroads should not be asked to carry the mail at unusually low rates, and that the average rate of pay for mail service has steadily fallen during the past twenty-five years in common with rates for freight and passenger business. Under the present laws governing the pay for mail transportation the average rates received will continue to decline with an increase in the volume of mail matter transported. It now remains for us to consider the question whether the rates of pay for mail service under existing laws are excessive.

In the absence of any data which will show that the pay received equals only the cost of service plus a fair profit—and we know of no way in which this cost can be determined—the answer to the above question must be sought in a comparison of the service rendered in transporting mails, and the pay received therefor, with other kinds of transportation service furnished by railroads. There is no other service performed by railroads wholly similar in character to that of mail transportation. Therefore, in any such comparison, due allowance must be made for any differences that may exist between the respective classes of service under consideration. The kind of service which is perhaps nearest like the transportation of mails is the express service. Although there are many marked differences between the express and mail service, we, however, submit the following com-

parison of these two classes of service, believing that such a comparison will clearly prove the contention that the rates received by railroads for mail transportation under existing laws are not excessive.

It is often urged that the compensation granted railroads for carrying the mail should be reduced because their earnings from this business far exceed those from the carriage of express matter. We have here an attempt to arrive at the reasonableness of a payment by comparing it with one made for the performance of another service. Let us test our mail earnings on this basis. This comparison is rendered easy because the fundamental principles that must be observed have been well established by legislation and judicial opinion. In the second section of the Interstate Commerce Act it is held that if any common carrier shall receive from any person a greater or less compensation than it receives from any other person for doing for him a *like* and *contemporaneous* service in the transportation of a *like* kind of traffic under *substantially similar* circumstances and conditions, such common carrier shall be deemed guilty of unjust discrimination. From this it follows that those who insist that the railroads are unjustly discriminating between the Government and the express companies and that the railroads should obtain no more from the transportation of mail than they do from express, must show (1) that the matter carried for the Government is *like* that carried for the express companies, (2) that the services rendered the Government are *like* those rendered the express compa-

nies, and (3) that the services are performed under substantially similar circumstances and conditions.

It is believed it can be shown to the complete satisfaction of this Commission, and of all unbiased persons, that the services rendered the Government and the express companies differ widely, not only in these three important particulars, but also in others, and that, therefore, there may be a difference in the rate received per pound or per ton carried, and yet there be no unjust discrimination.

Let us now examine these two forms of traffic under the heads cited above. First, is the matter carried for the Government like that carried for the express companies? This is a very important consideration, for the classification of commodities depends upon the degree of similarity that obtains, and rates depend upon the classification.[1] The controlling factors in determining classification are bulk, weight, and value of the articles carried, and ease of handling and risk in carriage. On the basis of these considerations it must be conceded at once that mail would rank higher in a classification than express matter, and therefore might legitimately be called upon to pay a higher rate. This point will not be dwelt upon here, as it will come up for discussion later on.

Under the second head the question was raised as to whether the service rendered the Government is like

[1] The right of the railroads reasonably to classify commodities will not be discussed, as it has been fully recognized by unquestioned practice, legislation, the decisions of the highest courts and the decisions and recommendations of the Interstate Commerce Commission.

that rendered the express companies. In other words, do the railroads perform more or less service for the Government than they perform for the express companies? A very limited investigation of this point will show that in several important particulars more is done for the Government than for the express companies. Before elaborating the point, let me state that this company cannot admit that the weight carried is the sole criterion of the service rendered and of what the compensation should be. The justice of the fundamental principle here contended for is so fully recognized in the business community, in legislation, in judicial opinion, in the decisions of the Interstate Commerce Commission and by all the text writers on transportation that it seems a work of supererogation for me to dwell upon it here. Yet I must do so, for those who attack the railroads proceed as though it were a well-established principle that weight alone determines railway charges, and that they have simply to show that the railways receive more per pound per mile for transporting mail than they do for express, and a case of unjust discrimination is made out. As this, then, is the situation, the differences in the services rendered the Government and those rendered the express companies must be pointed out in detail, however tedious this may be.

It is a well-established practice, and its justice has never been questioned seriously, to charge higher rates per pound on articles which for any reason require an unusual amount of car space in proportion to their

weight, other things being equal. If this were not done, many commodities would contribute almost nothing to the maintenance of the railroads. In conformity with this practice mail should pay somewhat higher rates, even, than express matter, for notwithstanding the fact that mail is heavy in proportion to its bulk when compactly stowed away, it occupies an unusually large amount of car space as it is now transported. Mr. James E. White, General Superintendent of the Railway Mail Service, testified before the Senate Committee on Appropriations on the 22d of April, 1898, that "it is estimated that the average weight of mail carried in a 60-foot postal car is 4,000 pounds daily."[1] The following table shows the disproportion in the space allotted by the Chicago and North-Western Railway to like weights of mail and express:

AVERAGE AMOUNT OF SPACE DEVOTED TO MAIL AND EXPRESS DURING 1897.

Commodity.	Linear Feet of Floor Space.[2]
Express, per ton per mile	32.82
Mail, per ton per mile	35.13

From this table it appears that for every ton of mail carried one mile we hauled 35.13 linear feet of floor space and for every ton of express but 32.82 feet of floor

[1] 55th Cong., 2d Sess., Senate Report, 991, p. 133.

[2] By linear feet is meant feet measured along the length of the car, the whole width being included. For example, 15 linear feet would be a space 15 feet long and the entire width of the car.

space. In other words, for every ton of mail we transported one mile we hauled much more car space than is contained in one of our standard box cars. The disproportion in the dead weight moved compared with the paying weight is even greater than the disparity just shown. Our 50-foot mail cars weigh 50,800 pounds,[1] while our 50-foot express cars weigh but 45,600 pounds; thus for every ton of mail carried, 17.84 tons of dead weight in the form of a car were hauled, while for every ton of express but 14.96 tons of dead weight were hauled.

It may not be going too far afield to explain very briefly why mail requires so much space, notwithstanding a great amount of weight can be put away in a small compass. It is due to the fact that the work formerly done in the post-offices proper is now almost wholly done in the railway post-office cars. The work of separation is now performed in quarters provided by the railways instead of in quarters provided by the Government. The separation is done in the cars to expedite the mails, and is so effective that a letter now reaches its destination as quickly as a passenger starting from the same place at the same time. The long delays in what were known as the distributing post-offices are now wholly obviated. The shifting of the place of separation has gone so far that on all routes of any importance the mail is separated in cars or apartments of cars, and on the important routes the mail is not only distributed for the cities, but in many cases it is actually made ready for the carriers and sub-

[1] These cars are much lighter than those we are now constructing.

stations of these cities. But the end has not even yet been reached, for the Postmaster-General recently said: "It is the intention eventually to absorb all the work of city distribution into the railway mail service whenever the mails can be expedited thereby." [1] It is this minute separation in the cars that requires so much space. The clerks must have room enough to work effectively. Some idea of the space required may be inferred when it is known that on the arrival of the great mail trains in Chicago in the morning the letter mail for the business portion of the city [2] is actually ready for the carriers, and the letters for the remainder of the city are sorted and ready to go at once to their respective stations. Chicago alone thus requires about 175 separations, this means sufficient space to hang up 175 pouches with their mouths wide open so that the mail can easily be thrown into them.[3]

As would be inferred, this removal of work from the stationary post-offices provided by the Government to the traveling post-offices supplied by the railways has been a great economy to the Government.

As early as 1874, Mr. Bangs, the Government Superintendent of Railway Postal Service, in a statement made

[1] Report of the Postmaster-General, 1895, p. 398.

[2] In this district is included all that portion of Chicago that is bounded on the north by Chicago Avenue, on the east by the lake, on the south by Twelfth Street, and on the west by Halsted Street.

[3] This description and illustration of the amount of car space required in the distribution of mail has been adopted by many others who have written upon this subject, and notwithstanding they have often quoted literally, no credit has been given. In substance it may be found in *The Postal Deficit*, page 42, et seq.

to the select committee of the Senate then investigating the payment made the railways for carrying the mail, said that "the effect of the trunk lines suspending the running of postal cars would be to force the Government in the city of New York to hire three or four large warehouses to do the mail distribution that they now do upon the railway trains." [1] While Mr. Davis, Assistant Superintendent of the Railway Mail Service of the Post-Office Department, testified at the same time that the effect of such discontinuance would be "to throw into the principal post-offices such a mass of matter that they would have no accommodations for it. With the limited accommodations they have they could not work a force sufficient to distribute in good time. It would involve a very annoying delay." [2]

The change in the place of the separation of the mail introduced still other differences between the mail and express service of the railroads. Not only must the railroads haul an unusually large amount of car space to accommodate the mail, but they must also transport the large number of clerks required to separate the mails. In addition to this, they are obliged to station the railway post-offices for many hours before the trains depart at points easily accessible, so that the mail can be conveniently loaded. In opposition to the first point raised, some one may say that the railways also carry express messengers in the express cars, and therefore this point

[1] 43d Cong., 1st Sess., Senate Rep., No. 478, p. 12.
[2] Ibid, p. 13.

falls to the ground. While it is admitted that express messengers are carried as well as railway postal clerks, the force of the first point is not lost, for we never carry more than one express messenger in a car, while in many of our mail cars we carry four postal clerks, and in a still larger number as many as three, and on the average haul two and three to the car.

As the mail is not equal in volume in both directions, some mail cars are regularly returned empty at the expense of the company. When this is done the mail clerks make the return trip free in passenger cars. The express messengers never enjoy this privilege. It may also be stated before leaving this subject that the number of Government officials, other than the clerks, enjoying free transportation far outnumber the officials of the express company, other than the express messengers, who are furnished free transportation. Under the laws and the regulations of the Postmaster-General, we are obliged to furnish passes to "all duly accredited agents of the Department and post-office inspectors upon the exhibition of their credentials." These officials are numerous, while there is but one official of the express company who travels very extensively. It is somewhat difficult for this company to understand why it should furnish free transportation to officials of the Post-Office Department whose duties seem to be wholly divorced from the transportation of mail on its line of road. Concretely stated, why should the North-Western Railway Company furnish free transportation in its passenger cars to a Government

official who may be sent from Chicago to inspect, say, the post-office building of Denver? The amount of transportation furnished officials of the Post-Office Department on the Chicago and North-Western Railway during the month of September, 1898 (the only period for which we have kept an account), was equal to the transportation of one passenger 59,204 miles. At this rate for the whole year, such service, which, of course, does not include the transportation of clerks when riding in mail cars, would amount to 710,448 miles, which at an average rate of two cents per mile would equal the very large sum of $14,208.96.[1]

Several hours before the postal car starts on its journey, and in one case twelve hours before the train leaves, the railway post-offices must be hauled to a point where the mail can easily be taken to them and where they are readily accessible to the railway post-office clerks. This is required because long before the train starts upon its journey the mail begins to arrive and the clerks commence their work. The cars cannot be stationed at a remote point, for this would involve delay and additional expense to the Government for wagon service, or would necessitate loading all the mail into the cars when they are brought to the station. The latter alternative would defeat the very end for which the railway post-offices are run; the clerks would be swamped if all the mail were thrown upon them at the last moment, and the delay in

[1] For a detailed statement of the miles traveled by officers and employes of the Railway Mail Service during the fiscal year ending June 30, 1898, see Testimony Part I, p. 445.

forwarding the mail would probably be as great as if it were held and distributed in the stationary post-offices. To avoid delays in delivering the mail and at the same time to keep down its expense, the Post-Office Department calls upon us to place the cars near our central stations, and this we do. But this forces us to devote very valuable land to the use of the Government. The express cars are stationed in our outlying yards, and are not pushed into the central yard until just a few minutes before the train departs. All the express is loaded at the last moment, and this must be done quickly, for the train will not be held.

Another important particular in which the service rendered the Government differs from that rendered the express company is the handling and delivery of the articles carried. Express matter is never handled either on the cars or at the stations by the employes of the Chicago and North-Western Railway Company unless specific payment is made for such work. The payment is not merely a nominal one. On the other hand, we are required by law and the orders of the Postmaster-General to perform various services beyond the transportation of mail on our trains. Our employes load the mail, and in case there is no postal clerk on the train, they also put it off at the proper place; at our termini they must unload the mail and truck it to the wagons or transfer it from car to car as may be necessary. When time to make connections is limited this work must be done with great dispatch, and therefore a larger force of men must be

employed than would otherwise be necessary. At Chicago we employ eight men who devote all their time to sorting, loading, and transferring mail. At connecting points where our stations are not more than eighty rods from those of the connecting company we are required to transfer any mail we may have to the connecting trains or deliver it to the agent of such company. We must also care for the mail, but are in no way responsible for the express. While the mail is at our stations we are responsible for it, and must therefore guard it. When a train departs from a station at night later than nine o'clock, the mail may be delivered to our agent before this hour, and he must keep it in a secure place until the train arrives and then put it on board. Our agents must also receive the mails arriving during the night hours and properly care for them until the post-office opens in the morning. We are required to take the mails from and deliver them into all *terminal* post-offices, whatever may be the distance between the station and the post-office, except in cities where other provision for such service is made by the Department.[1] We are also required to take the mails from and deliver them into all the intermediate post-offices and postal stations located not more than eighty rods from the nearest railway station at which the company has an agent or other representative. Of the 761 stations on our system, we deliver the mail at 570

[1] In all cases where the department has not made other provision, the distance between the terminal post-office and nearest station is computed in and paid for as a part of the route. This payment, however, does not begin to reimburse us for the cost of the wagon service.

and the Government at 191. The total cost to the Chicago and North-Western Railway Company of handling the mail at stations, between railroad termini and between stations and the post-offices, is almost 4 per cent. of the total compensation received for carrying the mail and furnishing postal cars. Thus, for a single form of service that is wholly distinct from the transportation of the mail—which, by the way, is the only service we are popularly supposed to render—we pay out on one hand almost 4 per cent. of what we receive from the Government on the other. While we do not object to performing work about our stations for which we are equipped, we respectfully submit that we should be relieved from the duty of carrying the mail between our stations and post-offices. This is a relic of the stage-coach era and is now an anachronism. It involved no appreciable expense for the stage-coach to deliver the mails, for it was adapted to this work, but to the railroads it means expense and trouble, for its organization and equipment are not suited to such work.

The services we render the Government differ from those rendered the express company in several other particulars. The post-office cars are of more expensive construction and it costs more to maintain them than it does express cars. The mail cars are well cared for and are fitted up with racks, hooks, chairs, closets, tables, drawers, washing facilities, sanitary arrangements, and generally with sleeping accommodations of some kind. They are constantly supplied with ice-water and are

equipped with the best lights that science affords. If they are not supplied with Pintsch gas they are equipped with six acme lamps and with side lamps in addition. During six months of the year many of the mail cars are lighted from twelve to sixteen hours of the day. This company fully recognizes that the mail cars must be well equipped and furnished with the best lights that can be procured, for we well know that the service required of the railway mail clerks is a very exacting one. All we ask is a recognition of the fact that we make unusual outlays in behalf of the Government.

In addition to the extra expense involved in fitting up the interior of the mail cars is the expense of equipping the cars with mail catchers for taking the mail bags as the trains pass through the stations. To co-operate with the catchers on the cars we erect mail cranes at the stations. The latter are much more numerous than the former. On our system we have 262 mail cranes and but 150 catchers.

By the act of March 3, 1879, the Postmaster-General is empowered to decide upon what trains the mail shall be carried. As a result of this act the mails gravitate toward the fastest trains. Sometimes the addition of a mail car to a limited train renders it very difficult for a train to make schedule time and is a source of great expense. The express company, unlike the Government, cannot dictate the trains upon which express matter shall be carried. It is entirely within the power of this railway to decide upon the trains which shall carry this traffic.

It was stated at the beginning of the discussion of our mail and express earnings that the two forms of traffic would be compared from the three standpoints fixed by the Interstate Commerce Act for determining unjust discrimination in charges. From two of these standpoints the examination has now been made, and it has been shown that mail matter is a higher form of traffic than express matter, and that the services performed for the Government exceed those performed for the express company, and that the latter makes specific compensation for special services, while the former never does. The two forms of business will now be compared from the third standpoint, namely, are the services performed under substantially similar circumstances and conditions. The discussion of this point may take a somewhat wider range than was contemplated by the statute. The express company pays monthly, while the Government pays quarterly. The character and demands of the mail service are such that the mileage the mail cars make is very much less than that of the express cars. Mail cars can only be used in the mail service, and only on the particular route for which their internal arrangements are designed. Express cars can be used as baggage cars, and can be run on any route, as they have no fittings. The principal explanation, however, of why the mail cars do not equal the mileage made by the express cars is found in the fact that the former are at the terminals a much larger portion of the time. Mail cars are adapted to a certain run, and waiting for this

run in some cases involves a loss of as much as eighteen hours.

The services rendered the Government and the express company by the Chicago and North-Western Railway have now been compared at length. Before leaving this subject the results of this comparison will be presented in narrow compass. I shall show how much per ton per mile we received for carrying mail and express when the services are reduced as far as possible to a comparable basis. A comparison of ton-mile earnings presupposes substantial similarity in the services rendered. Until a common basis has been reached, comparisons can have no value. In the following table I show the ton-mile earnings from mail and express:

EARNINGS PER TON PER MILE FROM MAIL AND EXPRESS ON THE BASIS STATED ABOVE.

Earnings per ton per mile from mail.....12.68 cents
Earnings per ton per mile from express.....11.27 cents

From the above table it appears that on the average we receive 1.41 cents more for every ton of mail we carry a mile than we do for express. The average earnings per ton per mile from mail, as shown in the above table, were, however, computed on the basis of the weight of mail we were paid for, and such weights were not the weights of mail carried during the year under consideration, but with the exception of a few minor routes were the results of the weighing in the spring of 1895.[1]

[1] This feature of the mail service, *i. e.*, the Government's failure to pay for all the mail carried, is treated fully in the succeeding section.

If we assume that the mail has increased in weight as rapidly during this period as the average increase of the former three periods, we actually carried during the fiscal year 1897, 6.48 per cent, or 401,648 tons, more weight than we were paid for. If this were added to the weight we were paid for, our earnings per ton per mile would have been but 11.91 cents, instead of 12.68 cents.

When the differences in the services rendered the Government and the express company were pointed out in detail, it was stated that several services performed for the Government were of such a nature that they could not be presented in terms of dollars and cents. In making a comparison of mail and express earnings, however, these differences must be kept in mind. By reference to the table on page 32 it will be noticed that we furnish more linear feet of floor space per ton of mail matter hauled than we do for a similar weight of express, the figures being 35.13 feet for mail and 32.82 feet for express, an excess for mail of 7.04 per cent. If space furnished as well as weight hauled be considered as a factor in comparing rates, and it should be so considered, then the rate for mail service should for this reason alone be greater than that received for express. But this is not all. Mail matter would rank higher in classification than express, and therefore it should pay higher rates. The number of Government officials transported free is much larger than the number of the officials of the express company carried without compensation. And finally, we render the Government a more extensive service than we

render the express company; *i. e.*, our fast trains take on and put off mail at more points than they do express. In view of these facts, it is respectfully submitted that these additional services rendered the Government far more than offset the slightly larger earnings we obtain from the mail.[1]

As is well known, the mail tonnage hauled by the railroads is not ascertained by actually weighing the mails for the entire period they are carried. The law provides that the weight of the mail on which the compensation of the railways is calculated shall be ascertained *not less often than once in four years* by actually weighing the mails for a period of not less than thirty successive working days. In practice the weighing is not done oftener than the law commands, or once in four years. The weight is ascertained, and here the injustice is done, several months before the beginning of the four-year period to which it applies, and no corrections made.[2] Now, as is well known, the volume of the mail, in harmony with other business and the growth of population, increases by leaps and bounds. This is particularly true here in

[1] Occasionally it is contended that the railroads should not expect their earnings from the mail service to equal those from the express service. It is held that the express companies are given a monopoly, and therefore can well afford to pay the railroads liberally, as they may in turn hope to extort monopoly prices from the public. In reply to this argument it may be stated that at all points of any importance the express companies compete with each other, and all of them have to meet the competition of the mail in the movement of light packages, and of the railroads themselves in the transportation of heavier weights. At points touched by but a single railroad the express companies have to meet the competition of the mails and the railroad.

[2] Professor Newcomb's discussion of this subject closely follows the lines I here lay down. See *The Postal Deficit*, pp. 74-75.

the Northwest. As a result, the mail carried at the end of the four-year period greatly exceeds that conveyed at the beginning of the period. In the subjoined table I show the percentages by which the weights carried in the weighing district[1] in which we are located increased in twelve years:

Period.	Per Cent. of Increase.
1883–1887[2]	16.03
1887–1891[3]	19.04
1891–1895[4]	16.78

If it be assumed that the weight this company carried increased as rapidly as the weight of the whole region, then for the whole of each of these periods we carried the following percentage of our paid weights without compensation:

Period.	Percentage of the Paid Weight Carried without Compensation for the Whole Period.
1883–1887	8.01
1887–1891	9.52
1891–1895	8.39

During the fiscal year ending June 30, 1895, we were paid for carrying 4,033,202 tons of mail one mile. The

[1] For weighing purposes the whole country is divided into four districts.

[2] Report of Postmaster-General, 1887, p. 393.

[3] Ibid., 1891, p. 339.

[4] Ibid., 1895, p. 164.

quadrennial weighing which took place in the spring of 1895 showed that we really carried 6,197,212 tons one mile. In other words, we carried 50 per cent more weight than we were paid for transporting.[1]

We are underpaid because of another practice of the Post-Office Department. The Department does not pay for the full weight which it is ascertained a railway carries. No payment is made for an intermediate weight which does not warrant an allowance being made of a dollar per mile. To take a concrete case, 5,079 pounds of mail may be carried over a route daily, but compensation will be allowed for only 5,000 pounds, as 79 pounds does not warrant an additional allowance of one dollar being made. If another pound were carried, another dollar would be granted. It is needless to say that on a system of numerous routes such as ours these intermediate weights for which no pay is given amount to a large tonnage in the course of a year.

For the reasons which have been given, the weight actually carried by the railroads considerably exceeds that paid for. At the beginning of the four-year period the unpaid weight is not of great importance, but it steadily increases, and probably amounts to fully 20 per cent of the paid weight by the end of this period. That they should be forced year after year to carry much more mail than they are paid for, the railroads cannot but regard as a grave injustice.

We have now presented such information as in our

[1] In 1894 we greatly improved our service.

opinion would be of service to the Commission. And we have attempted to put it into as intelligible a form as possible. If any data which the Commission may deem of importance have been omitted, they will gladly be supplied if another opportunity be afforded and it be possible to furnish them. As we have not been informed as to the lines the investigation would follow, we have been thrown back upon our own judgment as to what facts would be wanted. It was thought that the findings of the Commission would turn upon the earnings of the railroads from mail and express matter, and therefore this comparison was given the most attention. The exposition of our mail and express earnings occupied so much space that other points could not be fully treated within reasonable compass. Should we have erred in our main assumption, it is hoped an opportunity will be given for a fuller treatment of the neglected points.

THE CHARGE FOR RAILWAY MAIL CARRIAGE

THE CHARGE FOR RAILWAY MAIL CARRIAGE.[1]

In no year since 1884 have the receipts of the Post-Office Department equaled its expenditures. In recent years the annual deficiencies have become so great as to engage the serious attention of Congress and the public. It is generally held that as the Post-Office Department is nothing more than a business institution it should be self-sustaining. The plans brought forth designed to wipe out the annual deficits fall under two heads. Most of those who have carefully investigated the cause of the recurring deficits, notably the postmasters-general and Mr. Loud, have favored the curtailment of the unusual privileges enjoyed by second class mail matter. Another, and perhaps more numerous class, would put an end to the difficulties of the Department by a radical reduction of the compensation given the railroads for carrying the mail.

The abuses of the cent-a-pound mailing privilege have been repeatedly set forth by Mr. Loud and the post-

[1] This chapter was written in the spring of 1898, and was published in the spring of the following year, appearing in the March number of the Journal of Political Economy. In this article the accuracy of the statistics published by the Post-Office Department was for the first time questioned. The exposure which followed changed the whole character of the railway mail pay controversy, and prepared the way for the statistics that were later compiled for the Postal Commission by Professor Henry C. Adams.

masters-general, and therefore need not be given again here. Those who would lop off a third or a half of the pay given the railroads contend that the railroads are receiving eight or eight and one-half cents per pound for transporting the mail.[1] This, on its face, is regarded as excessive. Leaving the question as to what may be considered fair compensation for later discussion, let us attempt to discover if the railroads do actually receive eight or more cents per pound for hauling each pound of mail passing through the Post-Office Department.

This statement of the rate of compensation has been widely accepted because it has been quoted as coming from the postmasters-general and other high officials of the Government. So far as can be discovered, it has no other warrant than certain announcements of the postmasters-general and certain statements in a report of the House Committee on the Post-Office and Post Roads, and a statement of Mr. Davis, appearing in a report of the Senate Committee on Appropriations, that could be misunderstood. In 1894, Postmaster-General Bissell said:

> The total weight of all the mail matter dispatched in the mails of the United States during the year ending June 30, 1894, I estimate to be about 451,000,000 pounds. . . . The cost of carrying all this matter was $36,207,572, which gives an average of a small fraction over 8 cents a pound.[2]

[1] Sometimes they state the average number of miles each pound is carried; but generally nothing is said about the length of the haul. This matter, which is of prime importance, is often neglected, as though it were of absolutely no moment.

[2] Report of the Postmaster-General, 1894, p. 33.

In 1895, Postmaster-General Wilson, in calling attention to the great loss falling upon the Department because of the cent-a-pound rate of postage on second-class matter, in a more guarded statement, said: "The average cost to the Department of transporting and handling this matter is estimated at 8 cents per pound."[1] In 1896, when again discussing second-class matter, Mr. Wilson stated that "the mere cost of transportation of this matter is estimated at 8 cents a pound."[2] And in the same year Mr. Loud, in reporting on the abuses of the cent-a-pound rate of postage, stated, in behalf of the Committee on the Post-Office and Post Roads, that:

> The cost of transporting and handling all mail matter averages 8½ cents per pound. Fourth-class matter . . . pays postage at the rate of 16 cents per pound, which is about double the cost of transmission. Third-class matter . . . pays postage at the rate of 8 cents per pound—about the cost of transmission.[3]

While discussing the growth of second-class mail matter in 1897, Postmaster-General Gary said: "The cost to the Government of transmitting the 365 million pounds of second-class mail matter carried during the past fiscal year [1897] is estimated at 29 million dollars," or about 8 cents a pound; "the postal revenue received from it is estimated at three million dollars, leaving a loss on transportation alone of 26 million dollars."[4] In the

[1] Ibid., 1895, p. 31.
[2] Ibid., 1896, p. 7.
[3] House Report No. 260, pp. 1-2, LIV Congress, first session.
[4] Ibid., 1897, p. 7.

spring of 1898, Mr. Madison Davis, chief clerk of the third assistant postmaster-general, in a reply to a request from the general superintendent of the railway mail service, wrote:

I send you the following estimate of the average cost per pound of transporting matter in the mails for the last fiscal year. The total weight of mail matter of all kinds passing through the mails during the year is estimated, upon the basis of an accurate calculation made in 1890, to have been about 527,516,000 pounds.[1] Dividing this total expenditure [$42,186,975.78] by the number of pounds of matter, we see that the average cost per pound is about eight cents.[2]

Let us now examine these statements to see if they warrant the assertion that the *railroads* receive on the average 8 cents per pound for carrying the mail. Let us consider them seriatim. Postmaster-General Bissell, in 1894, stated that he estimated the total weight of all the mail matter dispatched in the mails of the United States, during the year ending June 30, 1894, to be about 451 million pounds. The cost of carrying all this matter was $36,207,572, which gives an average of a small fraction over 8 cents a pound. Mr. Bissell does not say that the cost of transporting this matter on the railroads was $36,207,572, or 8 cents per pound. He simply states, without specifying the manner, that the cost of carrying this matter was as just given. By referring to his financial statement for the year, it will be found that but

[1] This estimate does not include franked matter.

[2] Senate Report No. 991, p. 115, LV Congress, second session.

$28,735,065[1] were expended upon railway transportation and not $36,207,572. This would make the average pay 6.3 instead of 8 cents per pound, if the weight was as stated and the railroads carried it all.

Postmaster-General Wilson, in 1895, said in discussing second-class mail matter that "the average cost to the Department of transporting and handling this matter is estimated at 8 cents per pound." Mr. Wilson did not state that the cost of railway transportation was 8 cents per pound. He did not even say that the cost of transportation was 8 cents per pound, but that the average cost of transporting and handling is estimated at 8 cents per pound. Mr. Wilson did not make the bald statement that it costs 8 cents per pound to transport and handle this matter, because he knew that the data in his possession would not warrant so positive an announcement. In his next report in directing the attention of the country to the enormous loss arising from the transmission of second-class matter at the low postage rate of 1 cent a pound, Mr. Wilson declared that "the mere cost of transportation of this matter is estimated at 8 cents a pound." The question at once arises as to what he means by "transportation." He certainly must have had in mind more than railroad transportation, for the aggregate of the several forms of payment to the railroads was $30,951,528.93.[2] The total weight of the

[1] Report of the Postmaster-General, 1894, p. 27. This sum includes all three forms of payment; (1) that made on the basis of weight, (2) for railway post-office cars, and (3) "special facility" pay.

[2] Ibid., 1896, p. 39.

mail—exclusive of the franked matter, which could not have been less than 50 million pounds—was 512,977,326 pounds according to the figures of the Post-Office Department.[1] If it be assumed that this was the amount transported by the railways, the average cost per pound for railway transportation was but 6 cents.

Let us now pass to the report presented by Mr. Loud in behalf of the House Committee on the Post-Office and Post Roads. Speaking for this committee, Mr. Loud said, "The cost of transporting and handling all mail matter averages 8½ cents per pound," and that the postage paid on fourth-class matter is 16 cents per pound, which is about double the cost of transmission, etc. While this statement may not be so explicit as could be desired, yet any one in search of the facts should not have fallen into the error that 8½ cents simply covered the cost of railway transportation. Postmaster-General Gary said, in 1897, that the cost to the Government of transmitting the 365 million pounds of second-class mail matter carried during the past fiscal year is estimated at 29 million dollars, or about 8 cents a pound; "the postal revenue received from it is estimated at 3 million dollars, leaving a loss, on transportation alone, of 26 million dollars." This statement is almost too vague to criticise. If the second statement explains the first, the most that can be said is that the cost to the Government of transporting 365 million pounds of mail matter, by all means of transportation that may

[1] Ibid., pp. 7, 8.

have been employed, was 29 million dollars. It did not cost the Government 29 million dollars to transport 365 million pounds of mail matter by rail. This could easily have been discovered by any one ready to go to a little trouble to ascertain the truth. The total cost of railway transportation on the basis of weight alone was approximately 29 million dollars—accurately, $28,965,763—and the total of the three forms of payment to the railroads was $32,490,056.[1] The weight carried on the railroads, however, greatly exceeded 365 million pounds, which was but the weight of the second-class matter, according to the statistics compiled by the Department itself.[2] "The total weight of the mail carried was 607 million pounds," said Mr. Loud in discussing this point in the House of Representatives.[3] If it be assumed that all this mail was carried by the railroads during some portion of its journey, the cost for railroad transportation, the three forms of payment being included, was but 5.3 cents per pound.

One statement yet remains to be examined; that made by Mr. Madison Davis to the general superintendent of the railway mail service. This is easy to explain because the facts are given upon which it is based. Mr. Davis said the average cost per pound of transporting matter in the mails for the fiscal year 1897 was about 8 cents per pound. Mr. Davis has not left us in the dark as to what he means by transportation. He gives the items of

[1] Report of the Postmaster-General, 1897, p. 16.

[2] Ibid., p. 7.

[3] Congressional Record, LV Congress, second session, p. 3328.

expenditure which he includes under the general head of mail transportation. They are as follows:[1]

Railroad transportation	$28,965,763.52
Special facilities on railroads	162,978.33
Star transportation	5,322,484.86
Steamboat transportation	401,262.95
Electric and cable car transportation	139,734.81
Mail-messenger service	951,624.29
Wagon service	705,260.25
Mail bags and catchers	343,324.59
Mail locks and keys	41,964.13
Repair shop for mail bags	7,749.24
Railway postal-car service	3,361,313.76
Transportation of foreign mails	1,703,515.05
Additional compensation to the oceanic steamship company	80,000.00
Total	$42,186,975.78

Of these thirteen items of expenditure only three are for railroad transportation; several of them have nothing to do with transportation of any kind. Of the total expenditure of $42,186,975.78 only $32,490,056 can be assigned to railroad transportation.

We have now examined the original statements on the basis of which it has been asserted that the railroads receive on the average 8 or 8½ cents per pound for transporting the mail, and have found that the statements quoted do not warrant the assertions.

In making certain comparisons it is often asserted that

[1] Senate Report No. 991, p. 115, LV Congress, second session.

the railroads receive on the average 8 cents per pound for carrying mail an average distance of 328 miles. This differs from the statement just examined in that it attempts to state the average distance each pound of mail is carried. It represents an advance on the previous statement, for it looks upon the haul as a matter of too great importance to be wholly disregarded. In the consideration of this contention our investigation will take a wider range than in the examination just concluded. Up to this point I have merely shown that certain official statements often cited have been grossly misused. Now I shall go a step further. Certain data furnished by the Post-Office Department will be valuated and the methods employed in making certain estimates and averages will be analyzed. It will be shown what statistics furnished by the Department rest upon actual observation, and what do not. By this is meant, if the statistics have to do with weight, an attempt will be made to show to what extent they are based upon weighings; if they have to do with the distance mail is carried, to what extent they are based upon actual tests of the distance mail matter is sent.

Let us now examine the statement that the railways receive on the average 8 cents per pound for carrying the mail an average distance of 328 miles. What facts does it presuppose? Obviously the following data must be at hand: (1) the amount of matter carried by the railroads; (2) the average distance it is carried; and (3) the amount paid the railroads for rendering the service. It is respect-

fully submitted that the Post-Office Department does not possess accurate data on the first two heads, and if the facts are not in the possession of the Department no one else can have them.

Attention is first invited to the amount of matter in the aggregate actually carried by the railroads. How many pounds of mail, that is original matter, each piece being counted but once, are carried by the railroads in the course of a year? The post-office officials cannot give this information. They do not possess it. They do not even know with any degree of accuracy the amount of mail matter that passes through the mails in a year. But, in spite of this fact, many persons who have discussed the compensation received by the railroads have stated with assurance the exact amount of matter handled by the Department by years since 1880.

In 1886, Postmaster-General Vilas said, in comparing the growth of our mail matter with that of other countries, "No statistical account is maintained in the United States of the quantity in weight or number of pieces of our domestic mails;"[1] and then ventured nothing more than the general statement, "but, from the number of postal-cards, stamps, and pieces of stamped paper sold to the public, it may be unquestionably affirmed that the mail matter handled by our postal service greatly outweighs and outnumbers that of any other postal system." In 1887, we find this statement in the report of the Postmaster-General: "As I have before observed, it is diffi-

[1] Report of the Postmaster-General, 1886, p. 4.

cult to state with any degree of exactness the annual tonnage of the United States mail carried on all the railroads in the United States.'' [1] Here it was again expressly acknowledged that no exact information was at hand as to the weight of the mail carried by the railroads. When Mr. Wanamaker became Postmaster-General, he was very much hampered by the lack of trustworthy information of the volume of the business done by the Department. He made the first attempt to ascertain the count and weight of the mail. An account of what he did will be inserted in his own words:

> For important statistical purposes the Department has been at a loss for reliable data as to the number of pieces and weight of matter passing through the mails and the amount of revenue derived from each of the several classes of matter. For reasons involving the quickest possible dispatch of the mails it is impracticable to take a continuous account of the matter mailed. But a count of mail matter was ordered at all post-offices in the country for the seven consecutive days beginning at 6 o'clock A. M. on the 5th of May and ending at 6 o'clock A. M. on the 12th of May. . . . The instructions enjoined the utmost care upon the postmasters in making accurate reports. The week selected was believed to be a fairly average period upon which to estimate the total business for the year.[2]

Upon the basis of this weighing the weight of the whole year was estimated. Since 1890 no actual test has been made of the weight of the matter passing through the mails. The statements made are merely estimates

[1] Ibid., 1887, p. 399.

[2] Report of the Postmaster-General, 1890, p. 50.

based upon Mr. Wanamaker's actual test. As late as December, 1897, when called upon for a statement by the general superintendent of the railway mail service, Mr. Madison Davis, who had charge of these statistics, replied: "The total weight of mail matter of all kinds passing through the mails during the year [1897] is estimated, upon the basis of an accurate calculation made in 1890, to have been about 527,516,000 pounds."[1] It has been pointed out by Mr. Loud, chairman of the Committee on the Post-Office and Post Roads of the House, that this estimate does not include the franked matter. He estimates all the matter at 607 million pounds.[2]

From this statement it appears that the test made by Mr. Wanamaker in 1890 for a single week is still the basis of the estimates made of the amount of mail passing through the Department. At this point two questions naturally arise: (1) Was the week selected an average week? (2) Was the test well conceived and thoroughly executed?

Let us consider the first point raised—was the week selected an average week? This is a difficult question to answer. It can, however, be stated with assurance that we have no positive information that it was. To obtain an average the factors forming the average must be at hand, but they were not in this case. The field is so large and the volume of the business is so great that it seems perfectly safe to say that it is impossible for any man or set of men to fix upon a week and say this is an

[1] Senate Report No. 991, LV Congress, second session, p. 115.
[2] Congressional Record, LV Congress, second session, p. 3328.

average week. As the test began at six o'clock on the 5th of May, an average number of the magazines were not carried, for the magazines of large circulation are mailed so as to arrive at their destination before the first of the month. I have been informed by railway mail clerks that the period during which the mails are swelled by the magazines is clearly marked. They begin moving about the twentieth of each month and in a few days reach their maximum movement, and quite disappear by the last of the month—a few appearing as late as the third of the new month. A test, to be at all representative, must extend over at least a month. This has been fully recognized by Congress. In the act of 1873 fixing the rates of compensation to the railroads for carrying the mail it is stated that the weight shall be determined by *actually* weighing the mail for not less than thirty successive working days. Even with this period of actual weighing the railroads sometimes feel dissatisfied.[1]

Was the test well planned and thoroughly executed? No account was taken of the mail received in this country from foreign lands. The volume of this mail is now very

[1] In the autumn of 1899 the Postmaster-General ordered a weighing of original matter in all post-offices. This is the most complete test that has yet been made. By it the mail originating in each one of the post-offices was ascertained. The weighing was continued from October 3 to November 6, a period of thirty-five days. While this period was much more satisfactory than the short one of a week, it would have been better to have limited it to exactly one month, for this period represents a cycle. Had this been done, the proper proportion of light and heavy days would have been included. As it was, too many light days were included. The time selected was an unfortunate one for Chicago, because the 9th of October was a holiday, the mail on this day being only one-half the usual amount. The results of this weighing can be found in the statistical appendix p. 199.

great, and a large portion of it is hauled across the continent.[1] The test was not satisfactory for another reason. The postmasters were informed that the trial should not be allowed to delay the transmission of mail. As a result, during the busiest hours the weight of the mail was not obtained by actual weighings. The weights for these hours, which it was especially desirable to have as accurate as might be, were merely estimates.

In the light of the facts that have been presented, of what value are tables giving the amount of mail passing through the mails since 1880? Obviously these tables are not to be regarded as absolute data. At best, they can be considered nothing more than rough estimates. If the weight of the mails is not known it cannot be stated that the railroads receive eight cents per pound for carrying the mail.

On page 59 it was stated that it was manifestly necessary to have the following data to tell how much the railroads received per pound for carrying the mail an average distance of 328 miles: (1) The weight of the matter, (2) the average distance, and (3) the pay received. We have already examined the data falling under the first head, and may now direct our attention to the statistics we have under the second head. So far as I can discover, but one serious attempt has been made to ascertain the average distance each pound of mail is carried, and that was limited in scope and of short duration. In 1876,

[1] Report of the Postmaster-General, 1890, pp. 51 and 52. He does include the amount of matter sent to foreign countries from the United States.

Postmaster-General Jewell, in advocating graduated rates of postage, on the basis of distance, to apply to certain kinds of mail matter, said:

In order to arrive at any distinct conclusion regarding the rates that should prevail for the different distances, it is necessary to have the different proportions of mail destined for different distances. That their weight might be had, a report was asked for from a number of the largest offices in the country, giving the weight of the different classes of mail going to the different states during three days, and the distances to each and all states were averaged.[1]

This computation showed that the average distance the mail was then carried was 813.5 miles.[2] No other test equally thorough has since been made. In 1889, Postmaster-General Wanamaker made a test in forty offices,[3] and found that the average distance each piece

[1] XLIV Congress, first session, *Senate Miscellaneous Document No. 51*, p. 2.

[2] The tabulated results were as follows:

Weight in Pounds.		Distance, Miles.		
41,087	going	0 to	300	Average distance the mails were carried, 813½ miles.
13,494	"	300 "	600	
15,881	"	600 "	900	
13,586	"	900 "	1,200	
5,528	"	1,200 "	1,500	
1,269	"	1,500 "	1,800	
2,099	"	1,800 "	2,100	
1,378	"	2,100 "	2,400	
576	"	2,400 "	2,700	
703	"	2,700 "	3,000	
5,817	"	over	3,000	
101,418				

—XLIV Congress, first session, *Senate Miscellaneous Document No. 51*, p. 3.

[3] His experiment was tried in ten of the principal offices of each of the four classes.

of mail was carried was 442 miles. A glance, however, at the following table,[1] which presents a summary of the results of the forty offices, will show that the average distance each pound was hauled was much greater than 442 miles. This follows from the fact that his is a weighted average on the basis of the pieces handled,

RECAPITULATION OF THE FORTY OFFICES.

	Number of Pieces.	Number of Pounds.	Average Number of Miles each Piece was Carried.
1. Letters	3,382,571	69,849	386
2. Postal-cards	528,076	2,772	339
3. Wrapped parcels under seal at letter rate	8,907	2,776	430
4. Third-class matter	1,962,925	242,447	558
5. Fourth-class matter	101,326	42,819	599
	5,983,905	360,663	442

while what is wanted is a weighted average on the basis of the pounds handled. The table shows that of the total 360,663 pounds handled, the average distance that each piece of the 242,447 pounds of third-class matter was carried, was 558 miles, and that the average distance that each piece of the 42,891 pounds of fourth-class matter was carried was 599 miles. The table also shows that the average distance the 3,382,571 letters were carried was but 386 miles, and the average distance the 528,076 postal-cards were carried was only 339 miles. In brief, the matter of numerous pieces was short-distance mail, and therefore a weighted average based upon pounds

[1] Report of the Postmaster-General, 1889, p. 90.

would show a larger average distance than one based upon pieces. This test was faulty for still other reasons—it does not include second-class and franked matter.[1] If the table were still of any value in showing the average distance each pound of mail is carried, these omissions, it must be admitted, completely destroy it, for second-class matter is long-distance mail, and almost equals in weight all the other classes combined.[2] Now, if the weight of the second-class matter was about equal to that of all other matter combined, and if almost the whole of it was long-distance matter, and this is generally conceded, had this class been included in the test, it would have greatly raised the average distance each pound of mail was carried.

As has been stated, franked matter was also not included in the test. This, even to a greater extent than second-class mail, is upon the whole long-distance business. Here the general rule that people communicate most with those near at hand does not hold good, and for the obvious reason that the friends of each congressman are in his own district.

One attempt to ascertain the average distance each pound of mail is carried still remains for examination. This differs radically from the others. It does not rest

[1] Ibid., pp. 32 to 90.

[2] This statement is based on the test made for one week in 1890 of the different classes of matter mailed in the United States, to which I have already referred. As I hold that this test did not show the average amount of second-class matter handled, I believe it may be asserted that the weight of the second-class-matter fully equals all the other forms of postal matter combined, including the free and franked matter.

upon actual observation, but on a series of computations based upon estimates. In the language of its author it is as follows:

> An estimate by the Third Assistant Postmaster-General gives an average weight per day of 1,447,671 pounds of mail, which added to an estimated weight of 153,729 pounds of equipment, amounts to 1,601,400 pounds.
>
> The railway adjustment division gives, as carried by railroad lines per day, 7,846,851 pounds. Therefore 1,601,400 pounds is reweighed as many times as it is contained in 7,846,851 pounds—4.9—which must necessarily be the average number of routes a pound of mail passes over before it reaches destination.
>
> . . . . . .
>
> There are 2,587 railroad routes in the United States, and the total number of miles of these routes is 173,256. Therefore the average length of a route is 173,256.14 miles divided by 2,587 routes, or 66.97 miles.
>
> As above stated, 1 pound of mail is carried over 4.9 routes, and each route averages 66.97 miles, which makes 328 miles as the average haul of a pound of mail.[1]

Let us examine first the data and then the method by which this result was obtained. Attention has already been directed to the fact that the Post-Office Department has no data that are satisfactory of the total amount of mail matter handled each day; and therefore it was very properly stated in the demonstration, that it was estimated that the average weight handled per day was 1,601,400 pounds. It was also said in the demonstration that "the

[1] Senate Report No. 991, p. 146, LV Congress, second session

railway adjustment division gives, as carried by the railroad lines per day, 7,846,851 pounds." This sum does not represent the total amount of mail carried by the railroads. The weight actually carried by all the railroads is considerably in excess of the amounts announced by the Department. This follows, because the departmental statements of weight carried are always those ascertained at the previous weighings, which may have been made more than four years before, and therefore generally fall far short of the weight actually carried. Now, as the premises of the demonstration cannot be accepted, the deduction that on the average each pound of mail is carried on 4.9 routes cannot be accepted. The second average is above criticism; the Department has actual information of the number of post routes and their mileage, and can therefore obtain the average length of the routes.

The data used in ascertaining the average 328 miles have now been examined and the method employed in finding this average may now be considered. The method cannot be accepted. And for the very obvious reason that the relative importance of the routes, from the standpoint of the weight carried, is absolutely neglected. It is generally known that upon the whole the short routes are the light routes, and the long routes are the heavy routes, and that therefore the value of the long routes is increased by reason of the heavy mails that pass over them, while that of the short routes is diminished because of the light mails that pass over them.

All the data necessary for the employment of the proper method of determining the average distance each pound of mail is carried were at hand.[1] The number of pounds of mail matter (each piece counting but once) handled in the mails each day, and the average number of pounds of mail carried over the whole length of each railroad postal route in the United States each day, and the length of these routes, were all the facts needed. With the length of the routes and the average number of pounds carried over the whole length of each route each day, the total number of miles one pound was carried could be obtained, and by dividing this by the number of pounds turned over to the railroads, the average distance each pound was carried could have been ascertained.[2]

To make absolutely clear what I have stated I shall resort to a simple illustration showing the method which was employed to obtain the average distance each pound of mail is carried and then the method I hold should have been adopted. Let us suppose that there are but five postal routes in the United States, which are represented by the letters of the first column of the subjoined table, that they carry the weights indicated in the second column

[1] Some of these data have been criticised, but as they were all used in determining the average distance mail is carried by the faulty method, there appears to be no reason why they could not have been employed in determining the average distance by the proper method.

[2] In 1900, after the results of the weighing of 1899 were published, Professor Henry C. Adams computed the average distance each pound of mail is carried. The method he adopted was the one I have outlined and now shall illustrate.

their full length each day, and that they have the lengths indicated in the third column. Let us further suppose that 805 pounds of new matter are thrown upon the railroads each day.

Routes.	Average Weight of Mail Carried over Entire Route per Day.	Length of Route.	Number of Miles One Pound is Carried.
	Pounds.	Miles.	
A	10	10	100
B	100	50	5,000
C	200	100	20,000
D	300	200	60,000
E	1000	500	500,000
Totals	1610	860	585,100

At this point the author of the demonstration cited would say, "As the weights carried on all the routes amount to 1,610 pounds, and the new matter was but 805 pounds, each pound must have been carried over two routes." He would go on and state that "there are five railroad routes in the United States, and that the total number of miles of these routes is 860. Therefore the average length of a route is 860 miles divided by five routes or 172 miles." And he would continue: "As above stated, one pound of mail is carried over two routes and each route averages 172 miles, which makes 344 miles as the average haul of a pound of mail."

My own method differs radically from this. By multiplying the number of pounds carried over each route by the length of the route I obtain the number of miles one pound is carried. These results are given in

column four. By adding these products I find that the work done on the five routes was equivalent to carrying one pound 585,100 miles. Now, as by hypothesis 805 pounds of mail were carried on these five routes, we have simply to divide 585,100 by 805 to discover the average distance each pound was carried. This operation gives 726.7 miles, or more than twice the distance obtained by the former method. The importance of considering the weight of the mails carried as well as the length of the routes is perhaps sufficiently emphasized by this illustration.

The discussion of the contention that the railroads receive on an average 8 cents per pound for carrying the mail an average distance of 328 miles is now finished. And it is believed the following propositions have been established: (1) that the reports of the Government officials do not warrant the statement of the rate of pay commonly announced; (2) that the total weight of mail, each piece counting but once, handled by the Post-Office Department in a year is not known; and (3) that the average distance each pound of mail is carried is not known.

A VALUATION OF DATA: AN EXAMINATION OF THE RESOLUTIONS OF THE NATIONAL BOARD OF TRADE

A VALUATION OF DATA[1]

While the Joint Congressional Commission on Postal Affairs was taking testimony at Washington, in February, 1899, Mr. Finley Acker appeared before it and presented on behalf of the National Board of Trade a preamble and resolution in which it is contended that the existing law fixing the compensation the railroads receive for carrying the mail "requires radical modification." As this document has been very widely circulated,[2] and as it contains, succinctly presented, practically all the arguments showing that the compensation given the railroads is excessive, it will be carefully examined. Attention will, in the main, be directed to the data. A satisfactory review of the methods employed to ascertain what would be fair compensation to the railways would extend this article beyond reasonable limits. The data will now be valuated and

[1] With a few slight alterations this chapter is reprinted from the Journal of Political Economy, September number, 1899.

[2] The way was prepared for the preamble and resolution by a long report on the subject of railway mail pay by a committee, of which Mr. Acker was chairman. This report and the preamble and resolution received wide distribution through the printed proceedings of the National Board of Trade, and in pamphlet form. After Mr. Acker appeared before the Commission on Postal Affairs, these documents together with his testimony were sent all over the country; first as a part of the testimony taken by the commission, then as a part of the Congressional Record (LV Congress, third session, Vol. XXXII, p. 2794 *et seq.*), and finally as Senate Document No. 130, LV Congress, third session.

they will be taken up in the order, or about the order, of their importance.

The third section of the preamble presented by Mr. Acker in behalf of the National Board of Trade to the Commission on Postal Affairs reads as follows: " . . . the Post-Office statistics show that the rate paid to the railroads for hauling mail matter averages forty (40) dollars per ton per hundred miles. . . ."[1] In explaining the sources of his information, he says: "This statement is verified by the testimony of the General Superintendent of the Railway Mail Service on page 134 of Senate Report No. 991, in which it was shown that $34,754,742.69 was paid to the railroads for carrying 528,389,069 pounds of matter an average distance of 328 miles, thereby showing the cost of hauling one pound of mail a distance of 328 miles was 6.58 cents, or $131.60 per ton. By dividing $131.60 by 328 miles we have 40 cents as the cost per ton per mile or $40 per ton per 100 miles."[2]

As practically the whole of Mr. Acker's argument is based on the contention that the railways receive $40 per ton per 100 miles, or an average of 6.58 cents per pound for an average distance of 328 miles, these statements will be very carefully examined. The possession of what facts do they presuppose? Obviously to make them the following data must have been at hand: (1) the amount

[1] Testimony taken by the Joint Commission of Congress to investigate the postal service under the act of Congress approved June 13, 1898, Part I, p. 826. In the future when I have occasion to cite this document I shall refer to it simply as "Testimony," instead of by its full title.

[2] Testimony, Part I, pp. 828, 829.

of matter carried by the railroads; (2) the average distance it is carried, and (3) the sums paid the railroads for rendering the service.[1]

Attention is first invited to the amount of matter in the aggregate actually carried by the railroads. How many pounds of original mail are carried by the railroads in the course of a year? The Post-Office officials cannot give this information. They do not possess it. They do not even know, with any degree of accuracy, the amount of original mail matter that passes through the mails in a year.

In 1886, Postmaster-General Vilas said, in comparing the growth of our mail matter with that of other countries, "No statistical account is maintained in the United States of the quantity in weight or number of pieces of our domestic mails."[2] In 1887, we find this statement in the Report of the Postmaster-General: "As I before observed, it is difficult to state with any degree of exactness the annual tonnage of the United States mail carried on all the railroads in the United States."[3] When Mr. Wanamaker became Postmaster-General he was very much hampered by the lack of trustworthy information of the volume of the business done by the Department. He made the first attempt to ascertain the count and weight of mail. An account of what he did will be inserted in his own words:

[1] In the next twelve pages some of the material of the preceding chapter is repeated, but the argument has been greatly strengthened by the introduction of new matter.

[2] Report of the Postmaster-General, 1886, p. 4.

[3] Ibid., 1887, p. 399.

For important statistical purposes the Department has been at a loss for reliable data as to the number of pieces and weight of matter passing through the mails and the amount of revenue derived from each of the several classes of matter. For reasons involving the quickest possible dispatch of the mails it is impractical to take a continuous account of the matter mailed. But a count of mail matter was ordered at all post-offices in the country for the seven consecutive days beginning at six o'clock A. M. on the 5th of May, and ending at six o'clock A. M. on the 12th of May. . . . The instructions enjoined the utmost care upon the postmasters in making accurate reports. The week selected was believed to be a fairly average period upon which to estimate the total business for the year.[1]

Upon the basis of this weighing the weight of the whole year was estimated. Since 1890 no actual test covering the whole country has been made of the weight of the matter passing through the mails.[2] The test made by Mr. Wanamaker in 1890 for a single week is still the basis of the estimates made of the amount of mail passing through the Department. At this point two questions naturally arise: (1) Was the week selected an average week? (2) Was the test well conceived and thoroughly executed? The week was not an average one, but for reasons that will appear later it is unnecessary to discuss this point.

Was the test well planned and thoroughly executed? It was not well planned, for it did not include the mail received from foreign lands.[3] The volume of this matter

[1] Report of the Postmaster-General, 1890, p. 50.

[2] See note, p. 63.

[3] Ibid., pp. 51, 52.

is considerable, and as a portion of it is hauled from the Atlantic to the Pacific, it should not be omitted. Even now there is no record kept of the weight of the mail received from foreign countries except that of the closed mail destined for countries beyond the United States, so it is impossible to correct the Wanamaker test. If we knew the quantity of mail sent abroad we should have something to guide us in estimating the amount received from abroad; but as only a partial record is kept of the mail sent to foreign countries,[1] we are deprived of even this basis of computation.

Was the test well executed? By the testimony of General A. D. Hazen, who supervised the Wanamaker test, it is made clear that the weighing was very unsatisfactory, and that the results of the test were used only to a very limited extent.[2] After the test was completed, it was found that the revenue of the Department lagged far behind what the amount of matter the test showed was handled should have yielded. To make the weight and revenue check, the weights were altogether rejected or were revised. As the Department already possessed statistics covering the weight of the paid second-class matter, the weight ascertained by the test was entirely discarded. The weight of second-class matter mailed free in the county of publication was obtained from a test made some years before whereby it was found that the free county

[1] No record is kept of the amount of mail sent to Canada and Mexico by rail.

[2] Testimony, Part I, p. 459, *et seq.*

matter was 15 per cent of the second-class paid matter.[1] The weight of the first,[2] third, and fourth-class matter was, after the Procrustean fashion, lopped off so that the weight accorded with the revenue. The weights ascertained by the Wanamaker test were only used as a guide in determining the proportion in which the revenue should be divided among the three kinds of matter. General Hazen testified that the weight ascertained by the Wanamaker test exceeded the revenue by about 10 per cent.[3] Mr. Madison Davis, who, as chief clerk to Mr. Hazen, had general oversight of the test, testified that the weight of the first, third, and fourth class matter was reduced by 10, 15, 20, or 25 per cent, but he did not know by exactly how much.[4]

It is apparent from the testimony of General Hazen and Mr. Davis, the two men who had charge of the Wanamaker test, that its results were merely a rough approximation. This was conceded by General Hazen, for when pressed as to the accuracy of the results obtained, he said: "This tabulation does not purport to be anything more than an estimate."[5]

To sum up, the weight ascertained by the Wanamaker experiment is unsatisfactory as a basis for computing the weight carried by the railroads for the following

[1] Ibid., pp. 464, 469.

[2] Ibid., p. 424. The number and weight of postal-cards was made to agree with the Department's record of issues.

[3] Ibid., p. 468.

[4] Ibid., p. 425.

[5] Ibid., p. 470.

reasons: (1) It does not include the weight of matter received from foreign lands; (2) the weight was made to conform to the revenue, and thus any weight carried which was not paid for was squeezed out; (3) in making the weight balance with the revenue the weight of the equipment (pouches, etc.) was wholly excluded, and therefore the ascertained weight was about 10 per cent less than that carried by the railroads;[1] (4) the weight of such miscellaneous articles as roller-top desks, iron safes, carpets, astronomical instruments, train-loads of gold sent across the continent, census blanks, etc., sent through the mail to accommodate the other Departments of the Government were not included. A fair allowance for these items would swell the aggregate weight of the mail by many million pounds. The results of the Wanamaker test may be unsatisfactory for still another reason. The distribution of the revenue among first, third, and fourth class matter was determined by the weights obtained by the Wanamaker weighings. In other words, although the actual results obtained by the weighing were thrown out because they were found to be incorrect, it was held that the test accurately showed the *relative* weight of the

[1] The weight of the equipment represents about 9.54 per cent of the whole weight.—James E. White, General Superintendent Railway Mail Service; Senate Report No. 991, p. 135, LV Congress, second session.

This estimate proved to be far too low. The test made in the autumn of 1899, to which I have already referred, showed that the weight of the equipment almost equaled the weight of the mail carried. It is perhaps needless to add that this discovery was the greatest surprise uncovered by the weighing, and that it has led to some radical reforms. For the results of the weighing see appendix tables II and V.

different classes of matter, and therefore afforded a correct basis upon which to distribute the revenue of the Department. This may or may not have been true. If it was not true, and the weight of the first-class matter was exaggerated more than that of the other classes, then too much revenue was assigned to first-class matter, with the issue that the final result showed less weight handled by the Department than was really handled, for a given revenue assigned to first-class matter would mean fewer pounds of mail handled than if assigned to third or fourth class matter.

Now let us examine Mr. Acker's statement of the weight of the mail carried by the railroads. He says "that $34,754,742.69 was paid to the railroads for carrying 528,389,069 pounds of matter an average distance of 328 miles." This weight does not include all the mail handled by the Post-Office Department during the year 1897, and Mr. Acker should have known this, for the inaccuracy of the figures he accepts had been pointed out many times. The weight used by Mr. Acker in his calculations does not include government franked matter. The total weight of the mail handled during 1897, according to the table furnished the Commission on Postal Affairs by Mr. Davis, was 583,555,552 pounds,[1] and according to Mr. Loud's statements, 607 million pounds.[2] But for reasons that have just been pointed out, even these sums do not include the entire

[1] Testimony, Part I, p. 422.

[2] Congressional Record, LV Congress, second session, p. 3328.

weight handled. The mail received from abroad, which we shall say was ten million pounds, must be added, and also 56,625,000 pounds to cover the weight of the equipment.[1] If these additions be made and the figures of Mr. Davis be taken (they are less than Mr. Loud's) we find that approximately 650 million pounds of mail were carried, instead of 528,389,069.[2]

But some deductions must be made from this amount, for the total weight handled by the Post-Office Department is not transported by the railroads. Some of the foreign matter and most of the local matter never reaches the railroads at all. A portion of the matter carried by star routes and steamboats is not transported during any portion of its journey by rail. But these amounts are probably not so large as they are generally stated to be. Very likely less than 10 per cent. or say one million pounds, of the mail received from abroad is never conveyed by railroad. An allowance of 10 per cent. seems very liberal, for the foreign mail of our great Atlantic seaports, for the most part, comes to New York and is then conveyed by railroad to its destination. The local matter not transported by railroad is almost wholly confined to first-class and county free matter. But even some of this local matter is trans-

[1] Even now we do not have all the weight carried, for we have made no additions for several factors already pointed out which are very difficult to estimate. Many million more pounds should without doubt be added.

[2] The weighing of 1899 showed that even Mr. Loud's estimate was conservative, for the volume of mail greatly increased from 1897 to 1899. For details, see table V, page 201.

ported by rail, for the suburban trains are now being used in sending mail to the substations of large cities. Very little of the third-class, and practically none of the paid second-class and of the fourth-class and of the Government franked matter is local matter. A deduction, therefore, of 30 million pounds for local matter that does not reach a railroad would be very liberal. It is very difficult to estimate the amount of mail carried by steamboats and star routes that is not carried through some portion of its journey by railroad. But it is safe to say that the volume of this matter is very small indeed. The steamboat routes are very few in number, and the "star" mileage is now almost wholly made up of short stubs connecting railway stations with country post-offices. Practically none of the second-class paid matter, and of the third and fourth class and of the Government franked matter is carried over the whole of its journey by steamboats and the conveyances used on the star routes. It therefore seems probable that not over 15 million pounds of matter begin and end their journey on steamboats and star routes.

To sum up; we have, say, one million pounds of foreign mail, 30 million pounds of local matter, and 15 million pounds of mail carried by steamboats and star routes, or a total of 46 million pounds that is not carried through any portion of its journey by the railroads, and must therefore be deducted from the total volume of matter (650 million pounds) handled by

the Post-Office Department to obtain the weight transported by the railroads. This will leave 604 million pounds of mail that are transported by the railroads, or 75,610,931 pounds more than Mr. Acker gives them credit for carrying.[1]

In all his computations of the rate of pay received by the railroads for carrying the mail Mr. Acker assumes that the average distance the mail is carried is 328 miles as was announced by the Post-Office Department. The statements of the Post-Office officials of the average distance mail is carried are, however, far more unsatisfactory than their statements of the total weight of the mail handled. So far as I can discover, but one serious attempt has been made to ascertain the average distance each pound of mail is carried, and that was limited in scope and of short duration. In 1876, Postmaster-General Jewell, in advocating graduated rates of postage, on the basis of distance, to apply to certain kinds of mail matter, said:

> In order to arrive at any distinct conclusion regarding the rates that should prevail for the different distances, it is necessary to have the different proportions of mail destined for different distances. That their weight might be had, a report was asked for from a number of the largest offices in the country, giving the weight of the different classes of mail going to different states during three days, and the distances to each and all states were averaged.[2]

[1] It must not be forgotten that these figures are only my estimates.

[2] Senate Miscellaneous Document No. 51, XLIV Congress, first session.

This computation showed that the average distance the mail was then carried was 813.5 miles. No other test equally thorough has since been made. In 1889 Postmaster-General Wanamaker made a test in forty offices,[1] and found that the average distance each piece of mail was carried was 442 miles. A glance, however, at the following table,[2] which presents a summary of the results of the forty offices, will show that the average distance each pound was hauled was much greater than 442 miles. This follows from the fact that his is a weighted average on the basis of the pieces handled, while what is wanted is a weighted average on the basis of the pounds handled. The table shows that of the total 360,663 pounds handled, the average distance that each piece of the 242,447 pounds of third-class matter was carried was 558 miles, and that the average distance that each piece of the 42,891 pounds of fourth-class matter was carried was 599 miles. The table also shows that the average distance the 3,382,571 letters were carried was but 386 miles, and the average distance the 528,076 postal cards were carried was only 339 miles. In brief, the matter of numerous pieces was short-distance mail, and therefore a weighted average based upon pieces would show a smaller average distance than one based upon pounds.

[1] His experiment was tried in ten of the principal offices of each of the four classes.

[2] Report of the Postmaster-General, 1889, p. 90.

RECAPITULATION OF THE FORTY OFFICES.

	Number of Pieces.	Number of Pounds.	Average Number of Miles each Piece was Carried.
Letters	3,382,571	69,849	386
Postal-cards	528,076	2,772	339
Wrapped parcels under seal at letter rate	8,907	2,776	430
Third-class matter	1,962,925	242,447	558
Fourth-class matter	101,326	42,819	599
	5,983,905	360,663	442

This test was faulty for still other reasons—it does not include second-class and franked matter.[1] If the table were still of any value to show the average distance each pound of mail is carried, these omissions, it must be admitted, completely destroy it, for second-class matter is long-distance mail, and almost equals in weight all the other classes combined. Now, if the weight of the second-class matter was about equal to that of all other matter combined, and if almost the whole of it was long-distance matter, and this is generally conceded, for the short-distance second-class matter is largely carried by express companies and fast freight trains, had this class been included in the test, it would have greatly raised the average distance each pound of mail was carried.

As has been stated, franked matter was also not included in the test. This, even to a greater extent than second-class mail, is upon the whole long distance business. Here the general rule that men communicate most

[1] Ibid., pp. 32, 90.

with those near at hand does not hold good, and for the obvious reason that the friends of each congressman are in his own district.

One attempt to ascertain the average distance each pound of mail is carried still remains for examination. This differs radically from the others. It does not rest upon actual observation, but on a series of computations based upon estimates. In the language of its author, it is as follows:

An estimate by the Third Assistant Postmaster-General gives an average weight per day of 1,447,671 pounds of mail, which added to an estimated weight of 153,729 pounds[1] of equipment, amounts to 1,601,400 pounds.

The railway adjustment division gives, as carried by railroad lines per day, 7,846,851 pounds. Therefore 1,601,400 pounds is reweighed as many times as it is contained in 7,846,851 pounds — (4.9) — which must necessarily be the average number of routes a pound of mail passes over before it reaches destination.

. . . . . .

There are 2,587 railroad routes in the United States, and the total number of miles of these routes is 173,256. Therefore the average length of a route is 173,256.14 miles divided by 2,587 routes, or 66.97 miles.

As above stated, one pound of mail is carried over 4.9 routes, and each route averages 66.97 miles, which makes 328 miles as the average haul of a pound of mail.[2]

[1] It should be noted that a little more than 10 per cent is here added for the weight of the equipment. This allowance proved far too small, for the test of 1899 showed that the weight of the equipment practically equaled the weight of the mail carried. For the results of the weighing, see table II, page 200.

[2] Senate Report No. 991, p. 146, LV Congress, second session.

Let us examine first the data and then the method by which this result was obtained. Attention has already been directed to the fact that the Post-Office Department has no data that can be regarded as satisfactory of the total amount of original mail matter handled each day; and therefore it was very properly stated in the demonstration that it was estimated that the average weight handled per day was 1,601,400 pounds. It was also said in the demonstration that "the railway adjustment division gives, as carried by the railroad lines per day, 7,846,851 pounds." This sum does not represent the total amount of mail carried by the railroads. The weight actually carried by all the railroads is considerably in excess of the amounts announced by the Department. The departmental statements of weight carried are always those ascertained at the previous weighings, which may have been made more than four years before, and therefore these statements generally are far short of the weight actually carried. Now, as the premises of the demonstration cannot be accepted, the deduction that on the average each pound of mail is carried over 4.9 routes cannot be accepted. The second average is above criticism; the Department has actual information of the number of post routes and their mileage, and can therefore obtain the average length of the routes.

The data used in ascertaining the average 328 miles have now been examined, and the method of finding the average distance each pound of mail is carried may now be considered. The method cannot be accepted. And

for the very obvious reason that the relative importance of the routes, from the standpoint of the weight carried, is absolutely neglected. It is generally known that upon the whole the short routes are the light routes, and the long routes are the heavy routes, and that therefore the value of the long routes is increased by reason of the heavy mails that pass over them, while that of the short routes is diminished because of the light mails that pass over them.

All data necessary for the employment of the proper method of determining the average distance each pound of mail is carried were at hand.[1] The number of pounds of mail matter (each piece counting but once) handled in the mails each day, and the average number of pounds of mail carried over the whole length of each railroad postal route in the United States each day, and the length of these routes, were all the facts needed. With the length of the routes and the average number of pounds carried over the whole length of each route each day, the total number of miles one pound was carried could be obtained, and by dividing this by the number of pounds turned over to the railroads, the average distance each pound was carried could have been ascertained.

To make absolutely clear what I have stated, I shall resort to a simple illustration showing the method which

[1] Some of these data have been criticised, but as they were all used in determining the average distance mail is carried by the faulty method, there appears to be no reason why they should not have been employed in determining the average distance by the proper method.

was employed to obtain the average distance each pound of mail is carried, and then the method I hold should have been adopted. Let us suppose that there are but five postal routes in the United States, which are represented by the letters of the first column of the subjoined table, that they carry the weights indicated in the second column their full length each day, and that they have

Routes.	Average Weight of Mail Carried over Entire Route per Day.	Length of Route.	Number of Miles One Pound is Carried.
	Pounds.	Miles.	
A	10	10	100
B	100	50	5,000
C	200	100	20,000
D	300	200	60,000
E	1000	500	500,000
Totals	1610	860	585,100

the lengths indicated in the third column. Let us further suppose that 805 pounds of new, that is original, matter are thrown upon the railroads each day. At this point the author of the demonstration cited would say, "As the weights carried on all the routes amount to 1610 pounds, and the new matter was but 805 pounds, each pound must have been carried over two routes." He would go on and state that "there are five railroad routes in the United States, and that the total number of miles of these routes is 860, therefore the average length of a route is 860 miles divided by five routes, or 172 miles." And he would continue: "As above stated, one pound of mail is carried over two routes, and each route averages

172 miles, which makes 344 miles as the average haul of a pound of mail."

My own method differs radically from this. By multiplying the number of pounds carried over each route by the length of the route, I obtain the number of miles one pound is carried. These results are given in column four. By adding these products I find that the work done on the five routes was equivalent to carrying one pound 585,100 miles. Now, as by hypothesis 805 pounds of mail were carried on these five routes, we have simply to divide 585,100 by 805 to discover the average distance each pound was carried. This operation gives 726.7 miles, or more than twice the distance obtained by the former method.

The importance of considering the weight of the mails carried, as well as the length of the routes, is of such great moment that another illustration will be introduced, even at the double risk of offending the reader and of performing a work of supererogation. The error pointed out is such a simple one that ordinarily it would be quite sufficient to state it for it to be seen. It is the old question as to whether a simple or weighted average should be used. The error made by the Post-Office officials is sometimes made in computing average wages, and as the difference between a simple and weighted average can easily be pointed out in the domain of wages, an illustration will be drawn from this field. Suppose that a firm has twenty men and five boys in its employ, and that the former receive $3 per day and the latter

$0.50, and that the full force works each day. What is the average wage paid per day by this firm? It certainly is not $1.75, the average of the *rates* of pay, for $1.75 multiplied by twenty-five, the number of persons employed, gives but $43.75. This result shows at once that an error has been made, for twenty men who each receive $3 per day would in the aggregate receive $60, and five boys who each get $0.50 per day would in the aggregate earn $2.50 more, making a grand total of $62.50 received by the twenty-five persons employed, or an average of $2.50 per day, instead of $1.75, the average obtained by dividing by two the sum obtained by adding $3 and $0.50, the rates of pay respectively received by the men and boys. It must be at once apparent that the number of persons employed as well as the rates of wages paid must be considered if the average wage actually paid be desired, and for the same reason the weight of the mails carried over the different postal routes must be taken into consideration as well as the length of the routes if the average distance each pound of mail is carried be sought.

The third paragraph of Mr. Acker's preamble reads as follows: "The Post-Office statistics show that the rate paid to the railroads for hauling mail matter averages forty (40) dollars per ton per hundred miles, while at the same time, according to Poor's *Railroad Manual*, the rate received by railroads for hauling miscellaneous freight averages but eighty-two (82) cents per ton per one hundred miles, and the rate received by the railroads

for carrying passengers (allowing 200 pounds for each passenger and baggage) is about twenty (20) dollars per ton per hundred miles." [1]

It has just been shown that there is no warrant for the statement that the railroads receive forty dollars per ton per hundred miles for the carriage of mail. I should be greatly surprised if they received one-third of this sum.[2] Their earnings from freight and passengers are probably about as given. The comparison of mail and freight earnings is valueless because (1) of the unsatisfactory character of the statements of mail earnings, and (2) of the radical differences in the character of the service. More will be said upon the latter point later on. It will not be discussed here, as it is my desire to valuate the data used by Mr. Acker before examining his methods. Because of the first of the reasons just stated, a comparison of mail and passenger earnings cannot be instituted. Mr. Acker's statement of mail earnings is so wide of the truth that nothing will be said of mail and passenger earnings at this point. The discussion of this subject can be profitably delayed until a later day, for the Commission on Postal Affairs has in preparation a table showing the earnings per ton per mile from the mail traffic.

The fourth paragraph of Mr. Acker's preamble

[1] Testimony, Part I, p. 826.

[2] A few months after this chapter was originally printed, Professor Adams found that the railroads received 12.56 cents per ton per mile, and as he made no allowance for the weight carried for which no payment is made, even this amount is a little too high. My estimate was therefore well within bounds.

declares that "the Post-Office statistics further show that the average rate paid to the railroads for hauling one hundred pounds of mail matter the length of the average haul (estimated to be 328 miles) is six dollars and fifty-eight cents ($6.58), while the *Census Report of 1890* shows that the average rate paid to the railroads by the express companies for their average haul (the length of which is not shown by statistics) was but sixty (60) cents per hundred pounds."[1] Nothing further need be said about the worthlessness of the statements of mail earnings. The statements of the earnings of the railroads from the express business cited by Mr. Acker in the preamble appear to be even more inaccurate than his statements of their mail earnings. This is made clear by the testimony of H. S. Julier, general manager of the American Express Company, before the Joint Commission of Congress on Postal Affairs. The questions put to Mr. Julier, which, when not otherwise stated, were asked by the chairman of the Commission, Senator Wolcott, and Mr. Julier's answers will now be introduced. They will substantiate my statement.

Question. Perhaps, Mr. Julier, before I go extensively into that [the tonnage carried by the American Express Company during the year 1897] I had better ask you if you have examined the report of the Eleventh Census, so far as the same is made applicable to the express companies?

Answer. I have examined the report.

[1] Testimony, Part I, p. 826.

Q. Can you give the Commission some information as to who prepared this, in general, as to its accuracy, and any details respecting it that would give any information to the Commission as to what reliability can be placed upon it?

A. The American Express Company's figures were furnished by its general auditor. If you will allow me, I will peruse the census report [referring to the report]. I now speak so far as the American Express Company is concerned.

Q. You are testifying generally as to the American Express Company, which, compared with the other large express companies, does about what proportion of the business?

A. It does fully, I should say, one-fourth of the business.

Mr. Moody: Of the whole country?

A. Perhaps it might not be one-quarter, but nearly that.

Mr. Loud: Much of your business goes—the business you are estimating—through other express companies, too?

The Witness: That is true.

By the Chairman: You are now testifying so far as the business of the American Express Company is concerned?

A. Yes, sir. The number of waybills, the number of packages carried, the weight per package, are all estimated, and I might say guessed.

Q. How were they ascertained? Do you know?

A. In talking with our general auditor in reference to this matter, he said that the census commission sent a man over to New York several times—in fact, he came there repeatedly for three months. He was told very explicitly that the American Express Company had no statistics on those points, and it would be absolutely impossible to give accurate information. About a month before the census report was to be published, or, rather, the date fixed for closing the report, he came and said that he must have some information on those points. He was again told that it was absolutely impossible to give anywhere near accurate figures. He said, "Some figures must be given." "Well, then, all I can do is to make an estimate; I will do the best I can," is what our general auditor replied. He said that he had but a few days in which to prepare the figures, and made the best estimate possible. He did not pretend that they were accurate, not supposing for a moment that they were to be used for the purpose of comparing with mail, simply for the reason that, so far as we are concerned, the figures had no value whatever in our business.

Now, as to the tonnage. It is shown here that the American Express Company carried 570,593 tons. I said to the general auditor, "How do you arrive at those figures?" He replied: "I called upon the superintendents for them." I said: "Well, what do they represent? They certainly do not represent the tons we actually carried; that is, gross tons" [each article counting but once]. He replied, "I don't know anything about that." "Well," I

said to him, "the simplest test that I can put those figures to demonstrates to me that there is a very large duplication there." I made the test to him, and he answered, "Of course." I said further, that if the American Express Company had carried that many tons of freight from initial points and earned no more money than they had that year they would have gone into the hands of a receiver. I then said to him, "It is quite evident, to my mind, that the superintendents, in giving you those figures, have taken the gross tonnage carried over each line of road and over each division of roads with which we have separate contracts, and aggregated the whole." He then brought me papers upon which these figures were based, and it was as clear as daylight that I was correct.

Q. Just explain to the Commission how they would be duplicated.

A. In 1890 a very large proportion—I might say 95 per cent—of our roads were paid on the tonnage basis, and, of course, each road—the gross tonnage carried over each road—had to be computed separately. The tonnage going from Boston to Chicago would be reported from Boston to Albany, Albany to Buffalo, Buffalo to Chicago; and if it was going beyond Chicago, it would again be reported over the Chicago and North-Western, or the Burlington, as the case might be; so over each of the separate roads the tonnage would be reported, and the sum total of the gross weights as carried over each separate road represents the weights which appear in the census report.

Q. That is to say, you had a report from the Boston office showing the tonnage billed from there, and you had the same tonnage reported at Albany, and the same tonnage reported at Buffalo, and again at Chicago, if it went west.

Mr. Chandler: On through matter?

The Chairman: "Yes, sir.

The Witness: Now, I might say this: take the New York Central system, for instance, at that time; it would be possible for a hundred pounds of freight to be reported five different times.

Mr. Allison: On a single road?

A. Yes, sir; because the contracts were separate.

By the Chairman: Can you give the commission any sort of estimate or opinion as to what extent that estimate of tonnage is exaggerated?

A. The best figures that I can make show that this tonnage must be cut in two first, and not less than 10 per cent more of it taken off for transfers of matters received from other companies. Forty per cent. certainly is the highest proportion of those figures that we carried.

Q. You are unable to state, I suppose, as to whether that is true of other companies?

A. Well, from looking over the reports, I should say it must be the same.

Q. Then you would say that if 60 per cent were deducted from those figures that they would represent fairly the tonnage of the express matter?

A. I should think it would represent fully the amount of tonnage carried.

Mr. Moody: In 1890?

A. In 1890. I should rather think that 33⅓ per cent would be better, but 40 per cent would certainly, in my judgment, be right.

. . . . . .

Q. Now, as to [the length of] the haul?

A. It is a most difficult thing to arrive at; in different sections of the country it varies. In the Eastern and New England States I should place it at about 100 miles, possibly 125 miles; in the Central States it would be a little more, and in the Western States it would probably run from 175 to 200 miles.[1]

It was shown by me that we have no statistics of value of the cost to the Government of hauling the mail. It was made clear that the statistics commonly used are grossly inaccurate. By the testimony of Mr. Julier it is apparent that the information concerning the express business contained in the Eleventh Census is also wholly unsatisfactory. The real weight carried, each article counting but once, was very much less than the weight announced, for in making up the weight the matter was reweighed as it passed from railroad to railroad, and often when it passed from one division of the same railroad to another. If a comparison should be made of mail and express, it would be fairer to use the aggregate of the mail matter carried on all the postal routes of the

[1] Testimony, Part 1, p. 513 *et seq.*

United States, instead of the total weight handled by the Post-Office Department, each piece counting but once. If this were done, the mail, as was the express matter, would be reweighed every time it was turned over to a new system, and often when it passed from one division of a railroad to another.

A comparison of railroad earnings from mail and express is unsatisfactory for another reason. The average distance mail is carried appears greatly to exceed the average distance express matter is carried. The average distance the mail is transported, according to the statistics furnished by the Post-Office Department, is 328 miles, but the actual distance is probably much greater. Mr. Julier estimated that the average distance express matter is carried in the Eastern and New England States to be about 100 miles, possibly 125 miles, in the Central States a little farther than this, and in the Western States from 175 to 200 miles. Mail matter is thus probably carried much more than twice as far as express matter.

The last paragraph of the preamble submitted to the Commission on Postal Affairs by Mr. Acker in behalf of the National Board of Trade reads as follows: "The Department now pays, in addition to the above rates [viz., $40 per ton per hundred miles or $6.58 per one hundred pounds for the average distance mail is carried], an extra charge, averaging six thousand two hundred and fifty (6,250) dollars each year, for the use of each special mail car, notwithstanding the fact that these cars cost

only from two thousand five hundred (2,500) dollars to four thousand (4,000) dollars each to construct, and notwithstanding the fact that the additional cost to the railroads in using these cars over the ordinary apartment cars, which they otherwise would use, consists mainly in hauling a slightly heavier weight."[1] In his oral testimony before the postal commission Mr. Acker, while explaining how he obtained the rates received by the railroads, said: "Post-office statistics show that the rate paid to the railroads for hauling mail matter averages $40 per ton per 100 miles. This statement is verified by the testimony of the General Superintendent of Railway Mail Service on page 134 of Senate Report No. 991, in which it was shown that $34,754,742.69 was paid to the railroads for carrying 528,389,069 pounds of matter an average distance of 328 miles, thereby showing the cost of hauling 1 pound of mail a distance of 328 miles was 6.58 cents or $131.60 per ton."[2] An examination of page 134 of Senate Report No. 991, LV Congress, second session, reveals the fact that the $34,754,742.69 paid to the railroads for carrying the mail includes the sum (of $3,770,138.17) paid to the railroads for cars furnished. There is therefore no extra charge in addition to the rates Mr. Acker introduced of $6,250 per year for each full-sized railway post-office (car) furnished. It is difficult to understand how Mr. Acker made this error of duplication, for the items (there were only three),

[1]Testimony, Part I, p. 826.
[2]Ibid., pp. 828, 829.

which combined aggregated $34,754,742.69 paid to the railroads, were clearly presented.

In his oral testimony before the postal commission Mr. Acker several times spoke of the compensation given the railroads for furnishing full-sized railway post-office cars as a rental.[1] And many others have looked upon the payment for cars in the same light. It is often urged that the railroads should be paid no more for the use of post-office cars than the cost of maintaining and caring for them and a fair return upon their original cost. Such payment would be just if they were stationary post-offices and the government provided trackage for them. But they are not stationary post-offices, and the compensation paid for them must be regarded as in part a payment for hauling them with their load and the railway postal clerks in them. It was so considered when first granted. This additional compensation was made because Congress recognized that the separation of the mail in the cars necessitated the devotion of an unusual amount of car space to a given weight of mail. On this point, in speaking for the subcommittee of the Select Committee on Transportation Routes to the Seaboard, which had under investigation the transportation of mail, Senator Mitchell said, "Soon after the establishment of the post-office car service it became evident that the law of 1845, under which the payment to the railroads for carrying the mail was based upon weight, did not provide for the post-office car service, the *space occu-*

[1] Testimony, Part I, pp. 826, 830 *et seq.*

pied, instead of the *weight carried*, being the proper measure of the value of that service."[1] In other words, it was recognized by this committee that a wholly disproportionate amount of dead weight, in the form of car with its fittings, is hauled for a given weight of mail.

In early days the mail was carried in closed pouches in baggage cars, and the compensation was based almost solely upon weight. A single form of payment continued for some years after the railway post-offices were introduced, but Congress finally recognized the justice of the contentions of the railways and allowed those carrying the mails in postal cars additional pay for the extra service rendered in providing sufficient space for the distribution of the mails in the cars. This statement is only in part true. No extra pay is allowed for apartment-car service, and this in the face of the fact that the mail is separated quite as minutely in the apartment as in the exclusive mail cars. The discrimination, as stated by Mr. Acker, has no logical basis. But whether both should be paid for, or neither as contended by Mr. Acker, depends upon whether the compensation in the aggregate is excessive or not.

It may not be going too far afield to explain very briefly why mail requires so much space, notwithstanding a great amount of weight can be put away in a small

[1] Senate Report No. 478, p. 8, XLIII Congress, first session. The italics appear in the report.

compass.[1] It is due to the fact that the work formerly done in the post-office proper is now almost wholly done in the railway post-offices. The work of separation is now performed in quarters provided by the railways instead of in the quarters provided by the Government. The separation is made in the cars to expedite the mails, and is so effective that a letter now reaches its destination as quickly as a passenger starting from the same place at the same time. The long delays in what were known as the distributing post-offices are now wholly obviated. The shifting of the place of separation has gone so far that on all routes of any importance the mail is separated in cars or apartments of cars, and on the important routes the mail is not only distributed for the cities, but in many cases it is actually made ready for the carriers and substations of these cities. But the end has not even yet been reached, for the Postmaster-General recently said, "It is the intention eventually to absorb all the work of city distribution into the railway mail service whenever the mails can be expedited thereby."[2] It is this minute separation in the cars that requires so much space. The clerks must have room enough to work effectively. Some idea of the space required may be inferred when it is known that on the arrival of the great mail trains in Chicago in the morning the letter mail for the business

[1] Mr. James E. White, general superintendent of the railway mail service, testified before the Senate Committee on Appropriations, on April 22, 1898, that "it is estimated that the average weight of mail carried in a sixty-foot postal car is 4,000 pounds daily." Senate Report No. 991, p. 133, LV Congress, second session.

[2] Report of the Postmaster-General, 1895, p. 398.

portion of the city is actually ready for the carriers, and the letters for the remainder of the city are sorted and ready to go at once to their respective stations. Chicago alone thus requires about 175 separations, and this means sufficient space to hang up 175 pouches with their mouths open so that the mail can easily be thrown into them.

The first paragraph of the preamble reads as follows: "The law determining the rates for hauling mail matter by rail has not been modified for twenty years, notwithstanding the fact that during that period, according to Poor's *Railroad Manual*, freight rates have declined about thirty-five (35) per cent, and passenger rates have declined about seventeen and one-half (17½) per cent, and notwithstanding the fact that after the daily average weight of 5,000 pounds is reached the same rate is allowed per ton for hauling 300,000 pounds daily as is charged for only 2,000 pounds."[1] There are three implications in this section: (1) that the rates have not fallen, because the law fixing them has not been modified in twenty years, (2) that the rates paid for the transportation of mail should have been reduced, for there has been a decline in passenger rates, and an even greater decline in freight rates, and (3) that the sliding scale of payments should be extended beyond the 5,000-pound limit.

It appears to be here contended that mail earnings should have been reduced hand in hand with freight and passenger earnings. If the mail pay was fair in 1878,

[1] Testimony, Part I, p. 826.

and if the mail service has not been improved more rapidly than the freight and passenger service, this position would appear to be well taken. But these assumptions are not in consonance with the facts. The rates established by the act of 1873 were accepted with great reluctance. After the reductions of 1876 and 1878 they were considered so far from remunerative that the railroads felt obliged to remove all trains run primarily to expedite the mails. Thus the rates were not considered fair in 1878. It must also be kept in mind that no other service rendered by the railroads has been improved so rapidly as the mail service, both in the matter of speed and frequency. This is so well known that it need not be elaborated.

But it must not be inferred because stress has been laid upon the great improvements made in the mail service that there has been no decline in the rates paid to the railroads. Although there has been no reduction made by law (or, accurately, by new legislation) since 1878, the compensation given the railroads for carrying the mail has fallen very rapidly. This has been brought about by the sliding scale introduced by the act of 1873. The rate of compensation granted decreases rapidly with an increase of weight. The pay for transporting mail on roads that carry 200 pounds per day was fixed at 117 cents per ton per mile, while that for carrying mail on roads that transport more than 5,000 pounds per day was fixed at but 5.8 cents for every ton in excess of 5,000 pounds, or less than one-twentieth of the first rate. The

wholesale principle of fixing prices never received more drastic application. During the last twenty years the weight of the mail carried on practically all routes has increased rapidly. This increase of weight, through the operation of the statute, has brought about a great reduction in the rates of compensation. It thus appears that the cause (viz., the increase in tonnage) which in the main explains the decline of freight rates has also brought about a great reduction in the average rate of pay received for the transportation of mail. I venture the opinion that the average rate of earnings of all the railroads of this country from the transportation of mail has fallen very much more than the average rate of earnings from passenger business, and a little more than the average rate from freight. Some data are already at hand to show that this is true, and these will be introduced, so far as it is possible to do so within reasonable compass, and then the point will be passed over, for the Joint Congressional Commission on the Postal Service, as has already been stated, has employed a statistician who will ascertain the rate paid the railroads per ton per mile by years since 1873. The statement I have just made as to the relative decline of mail, freight, and passenger earnings is in part based upon a table compiled by the second assistant postmaster-general showing the decline in the rate of pay on forty postal routes from 1881 to 1897,[1] and in part

[1] This table is so large that it will not be introduced. It may be found in Senate Report No. 991, LV Congress, second session, pp. 126, 127.

upon data furnished by the Chicago and North-Western, the Chicago, Burlington, and Quincy, and the Union Pacific railway companies. In the subjoined table the relative decline in rates on these three large systems is set forth.[1]

Companies.	Decline of Freight Earnings per Ton per Mile.	Decline of Mail Earnings per Ton per Mile.	Decline of Passenger Earnings per Passenger per Mile.
	Per cent.	Per cent.	Per cent.
Decline on the Union Pacific, 1888 to 1897	15.80	23.40	8.10
Decline on the Burlington, 1879 to 1897	29.37	55.26	13.69
Decline on the North-Western, 1879 to 1897	36.54	39.73	26.85

This exhibit affords some basis for the contention that mail earnings since 1879 of all the railroads of the United States have fallen more rapidly than have the average earnings received from freight and passenger business.

In the first paragraph of the preamble of the National Board of Trade it is implied that the scope of the sliding scale should be extended. As the law now stands the railroads receive a fixed sum[2] (5.8 cents per ton per mile) for every ton carried after the first 5,000 pounds. As the first 5,000 pounds are paid for at the rate of 18.7 cents per ton per mile, the much lower rate of pay for

[1] For the data of the Union Pacific Railway Company see Testimony, Part I, p. 355; the "North-Western," ibid., p. 198, and the "Burlington," see Changes in the Rates of Charge for Railway and other Transportation, pp. 20, 66. The mail earnings of the last named company were obtained from its officials.

[2] On the basis of weight.

the tonnage in excess of this weight causes a rapid decline in rates up to weights of 50,000 pounds, the rate paid on the basis of weight for 20,000 pounds being 9 cents per ton per mile, and for 50,000 pounds but 7 cents, or much less than one-half the rate received for the first 5,000 pounds. For greater weights than 50,000 pounds the rates decline slowly. It is contended that the reductions should not stop at the 5,000-pound point, but should continue indefinitely in consonance with the wholesale principle. In opposition to this point of view it may be asserted that the operation of the established sliding scale operates automatically with great force up to weights of 50,000 pounds, and that beyond this point it should not operate with equal force, for there are limitations to the application of the wholesale principle of fixing prices, and on routes over which a greater weight is daily carried a special service in point of speed and frequency of service is maintained. In a general way it may be said that until a weight of 50,000 pounds is reached the mail business is an adjunct of the passenger business, but when this weight is exceeded the mail service, as the weight increases, is more and more specialized, and quickly develops into a service of an entirely different order in both speed and frequency. The advent of the new order is marked by the appearance of the fast mail train. These trains depart at hours that will expedite the largest amount of mail, and are run at a very high rate of speed wholly or almost wholly to expedite the mails.

The second section of the preamble is as follows:

Since 1885 the mileage of the star routes has increased fourteen and one-half (14½) per cent, and the average weight of mail matter materially increased, while figures show that the total cost of hauling has slightly decreased, while during the same period the mileage of railroad routes has also increased forty-three and one-third (43⅓) per cent; but the cost of hauling also increased from fourteen million seven hundred and fifty-eight thousand four hundred and ninety-five dollars ($14,758,495) to thirty-four million seven hundred and fifty-four thousand seven hundred and forty-two dollars and sixty-nine cents ($34,754,742.69), or an increase of over one hundred and thirty-five (135) per cent.[1]

The forms of service here compared are so different that nothing of value can result from their being contrasted, but as no attempt is now being made to pass upon Mr. Acker's methods of determining what would be fair compensation to the railroads, we shall proceed at once to the valuation of the data. There has been the increase in the mileage of the star routes noted by Mr. Acker, but I know of no statistics which support his contention that the weight of mail matter upon the star routes has materially increased.[2] On the contrary, there are very good reasons for supposing that the weight car-

[1] Testimony, Part I, p. 826.

[2] In reply to a call for the statistics of mail carried over star routes, Second Assistant Postmaster-General W. S. Shallenberger, wrote: "You are correct in your supposition that the Department does not know the weight of the mail carried by star routes. Answering your other inquiries: the Department has no statistics bearing directly upon the subject, and therefore is not able to state to what extent, if any, the weight of mail carried by star routes has increased since 1885."

ried over the star routes is much less now than in 1885, for the character of these routes has very largely changed, and because there has been but little increase in the rural population during the last decade and a half. During the last two decades the star service has been transformed. The long routes connecting important centers, of which there were many in the West, have been supplanted by railroads. The change that has taken place was noted long ago by second assistant postmaster-general Thomas J. Brady, who said in 1880: "The star service, viewed as the principal means of mail transportation, is, of course, like all primitive modes of intercourse, doomed to give way and disappear before the steady march of the locomotive. Each year the number of great star routes will become less and the distance traversed by them shortened."[1] From 1885 to 1898 the mileage of these routes increased but 14.6 per cent, while the number of routes increased 76 per cent. thus showing that the average length has greatly decreased.[2] The star mileage is now almost wholly made up of short stubs connecting railway stations with the rural post-offices. The significance of this change from long stage lines connecting considerable bodies of people to routes of a few miles in length connecting the railway and the country post-office is found in the fact that over the former large weights of mail were carried, while over the latter the weight is insignificant.

[1] Report of Postmaster-General, 1880, p. 76.
[2] Ibid., 1885, p. 241, and ibid., 1898, p. 290.

As stated by Mr. Acker, the total cost of carrying the mail on the star routes has slightly decreased since 1885. This is as it should be. For the reasons that have just been introduced the cost of this service should have declined, for the long routes in the far West where service was exceedingly expensive have been very largely supplanted. At one time there was a single route that cost the Government at the rate of $1,750,000 per annum.[1] It is also a matter of common notoriety that the railway mail service has constantly improved, while the star route service has as constantly deteriorated until the former has become a source of pride and the latter an object of humiliation. The star route service should not be used as a basis of comparison, for it is now very often performed for less than cost, the loss being borne by poor and ignorant men of whom advantage has been taken.[2] On the two points just discussed, the Postmaster-General in his latest report expressed himself most emphatically. He said, "As a general proposition, a reduction in the cost of conducting the public business would seem to be a desirable end to attain. But it becomes a serious question whether this has not been carried so far in respect of star routes as to impair the efficiency of the service. Certainly the present system of speculative bidding is attended with evils which are discreditable to the Government.

[1] Wells, Fargo & Co. were paid at this rate for carrying the mail between the termini of the Union Pacific and Central Pacific railroads. Ibid., 1868, p. 7.

[2] For a description of how this is done, see Report of Postmaster-General, 1898, pp. 291, 292.

. . . I believe that a considerably larger sum for star transportation would be well expended if it resulted in improved equipment, as many of the horses and vehicles now used in carrying the mails present such a dilapidated and disreputable appearance as to be a strong argument in condemnation of the present system."[1] Those who have had no opportunity of contrasting the railway mail with the star route service can gain an idea, although a wholly inadequate one, of the superiority of the former over the latter by comparing the railway mail with the wagon service of their own city.

The mileage of railway routes has increased a little more than was stated by Mr. Acker. Instead of increasing 43⅓ per cent, it increased 44.4 per cent, or from 121,032 miles in 1885 to 174,777 miles in 1898. Mr. Acker gives the mileage in the latter year as 167,755 miles, but this statement is incorrect. This will be quickly seen by any one who will read pages 301 and 630 of the Report of the Postmaster-General for 1898. On the latter page, which is the reference cited by Mr. Acker, the following statement appears: "The miles of railroad covered by full railway post-office lines was 42,656.99; by apartment railway post-office lines, 113,776.28; by electric and cable car lines, 379.47; by steamboat lines, 10,942.47; making a total mileage of 167,755.21 covered by railway post-office service." No one should have been misled by the erroneous final statement, and especially not as almost immediately the following statement appears: "In addi-

[1]Ibid., pp. 291, 293.

tion to this there was a closed pouch service on 18,970.38 miles of railroad."[1]

The absurdity of comparing the star route and railway service on the basis of aggregate lineal mileage simply must appear to any one, for speed, weight, and accommodations furnished are entirely neglected. Upon the whole it may be safely said that the speed of conveyance on star routes has actually decreased, for the great stage lines, over which the mails were carried at a high rate of speed considering the mode of conveyance, have practically disappeared. This, as is well known, is in striking contrast with the railway mail service, where the speed of trains has been constantly accelerated. As has already been stated, the average weight of mail carried on the star routes has probably decreased. This is also in striking contrast with the railway mail service, where the weight has increased by leaps and bounds. Some idea of the increase of weight carried may be gained by an examination of the table on the following page, which covers several of the leading railway routes.

This table makes it apparent that there has been a very great increase in the weight of the mail carried by the railroads. The increase could be shown more fully, but the best presentation that could now be made would only be illustrative, so nothing more will be attempted, as in a short time the Report of the Joint Congressional

[1] The aggregate of the railway mileage as here given is 175,403.65 miles, but I prefer to use the mileage I have given, as it covers the entire mileage upon which compensation has been adjusted.

TABLE SHOWING INCREASE OF WEIGHTS ON CERTAIN POSTAL ROUTES.[1]

Route.	Average Number of Pounds Carried over the Whole Route each Day.	
	1885	1898
Boston-Albany	38,986	111,105
New York-Buffalo	99,901	250,449
New York-Philadelphia	136,401	309,294
Philadelphia-Pittsburgh	91,679	183,876
Buffalo-Chicago	69,142	153,360
Chicago-Burlington	54,621	120,030
Burlington-Union Pacific Transfer	37,031	86,746
Union Pacific Transfer-Ogden	23,990	65,394

Commission on Postal Affairs will be printed, and it may be expected to show the increase in the ton mileage carried by the railroads in the aggregate for a long series of years.[2] As has already been stated, there has been in all probability only a slight, if any increase at all, in the ton mileage carried on the star routes. No information has been collected by the Post-Office Department that would make a positive statement to this effect possible, but there is very good indirect evidence that points to this conclusion. It is a patent fact that during the last two decades the railroads have reached all considerable bodies of population. From this it follows that the star route service has been progressively restricted to the rural districts. During the last two decades the increase of population in this country

[1] This information was obtained from the Reports of the Postmaster-general, Table H.

[2] For this information, see Table XII, p. 207.

has been in the urban centers. This is to say, the cities, towns, and villages have increased in population much more rapidly than the agricultural sections. During the decade ending with the year 1890 the urban population increased twice as rapidly as the rural, and as the same forces have remained at work, it may be assumed that at least the same rate of increase has been maintained during this decade.[1] From these facts it seems fair to assume that there has been no increase in the weight carried by the star routes, but that there has been a very heavy increase in the weight transported by the railroads.

The compensation received by the railroads for carrying the mail has not increased anywhere near so rapidly as represented. In the preamble it is stated that the railroads received $14,758,495 in 1885. This is the sum they were paid for special facilities and on the basis of weight,[2] but this amount does not include the payment for railway post-office cars. The total sum paid the railroads for all forms of service during the fiscal year 1885 was $16,627,983,[3] not $14,758,495, as stated in the preamble. Before appearing before the Postal Commission, in behalf of the National Board of Trade, Mr. Acker discovered the error just pointed

[1] Eleventh Census, Report on Population, Part I, p. lxix.

[2] Report of the Postmaster-General, 1898, p. 302.

[3] Ibid., 1898, p. 302. If the sums withheld from the Pacific railroads for the transportation of mail during 1885 be included, the total expenditure for railroad service was $17,968,209. For the sums withheld from Pacific railroads, see Report of the Postmaster-General, 1885, p. 905.

out, but in attempting to correct it made another. Before the Commission he stated that the cost of transportation and railway post-office cars for 1885 was $17,336,512. This amount was not paid during 1885; it was paid in 1886.[1] In citing the amount received by the railroads during 1898, Mr. Acker leaves the reports of the postmasters-general for Senate Report No. 991 on the mail service, and on page 134 finds that the railroads received $34,754,742 for all forms of mail service during the fiscal year 1898. This sum is larger than that reported by the Postmaster-General, namely, $34,379,226.98,[2] which is the sum that was actually expended. As the statements for both 1885 and 1898 made by Mr. Acker of the aggregate compensation received by the railroads are inaccurate, the contention made in the preamble that there was an increase of 135 per cent. in the compensation received by the railroads from 1885 to 1898 is incorrect. The actual increase was 106 per cent. if the sums withheld from the Pacific railroads be left out of consideration, and but 94 per cent. if these sums be included.

The data contained in the preamble and resolution presented to the Joint Congressional Commission on Postal Affairs by Mr. Finley Acker have now been valuated. It is believed that it has been conclusively shown that, with a very few unimportant exceptions,

[1] Ibid., 1898, p. 302.

[2] Ibid., p. 16. To obtain the total expenditures for railway mail service $515,263.42 should be added, for this sum was withheld from the Pacific railroads during the fiscal year 1898. Ibid., p. 302.

the data used are very inaccurate. All the principal arguments that the compensation granted the railroads for carrying the mail is excessive are grounded on the assumption that the railroads on the average receive forty cents per ton per mile for transporting the mail. This assumption is merely an estimate based upon the most unsatisfactory data. If the reasonableness of the pay granted the railroads is to be approached from the comparative standpoint, it becomes necessary first of all to obtain an accurate table of railroad earnings per ton per mile from the mail business. A table covering the period from 1873 is now being prepared for the use of the Commission on Postal Affairs, and it is hoped that it will be embodied in its final report. While it is impossible, with the data now at hand, to prepare a table entirely satisfactory,[1] it is possible to prepare one that will serve as a good working basis, for we know the average weight carried over the full length of each postal route each day and the compensation granted for the service.[2]

[1] This follows because of the system of weighing now in vogue. The mails are weighed but once in four years, and the weight is ascertained three or four months before the beginning of the four-year period to which it applies, and no corrections are made. From this it follows that the railways are not given credit for the full weight they carry.

[2] When confronted with evidence he could not impeach that the railways received but 12.56 cents per ton per mile for carrying mail instead of 40 cents, Mr. Acker at once prepared a new argument which he declared warranted a larger reduction than his original argument. It was so fanciful, however, that it has received but scant attention.

REASONALBLE RAILWAY MAIL PAY: AN EXAMINATION OF THE TESTIMONY OF PROFESSOR HENRY C. ADAMS

REASONABLE RAILWAY MAIL PAY.[1]

In a previous article on railway mail compensation I intimated that at a later time I hoped to discuss what may be considered "fair" pay for the transportation of mail. As an elaborate discussion of this question has just been submitted to the Postal Commission by Professor Henry C. Adams, I shall forego an extended statement of my own, and content myself with a review of his testimony.

Before stating the fundamental principles which should govern rate-making, Professor Adams thought it necessary to clear the field of certain preconceptions on this subject that seem to have become firmly rooted in the minds of many witnesses and of several of the members of the Commission. With but few exceptions the witnesses who appeared before the Commission based their judgment of the reasonableness of the mail pay on the cost of rendering the service. One representative of the railroads after another contended that the present compensation is not excessive, because it costs nearly as much to carry the mail as the rail-

[1] This chapter was reprinted from the Journal of Political Economy, March number of 1900. The citations have been changed from the pamphlets in which Professor Adams's testimony originally appeared to the volumes in which the testimony taken by the Postal Commission was finally printed. When this chapter was originally printed Professor Adams had not submitted all of his testimony.

roads receive from the Government for performing the service. The line of argument adopted by the railroads is difficult of explanation, for the accounting officers of the railways have more than once placed themselves on record that it is impossible to separate accurately even passenger train from freight train expenditures, and consequently they would concede that an attempt further to distribute the cost of running passenger trains to mail, express, and passengers would be even more unsatisfactory. Perhaps the men who represented the railroads before the Commission were not familiar with railway accounting. But it also occurred to me, as I read the testimony, that the railway men may have attempted to justify the compensation they received on the basis of cost of service because they felt that this was the line of argument the majority of the Commission wanted. And whatever may be said of their attempts from a theoretical standpoint, all will have to admit that the arguments based on the cost of service were the ones that found favor with the Commission. Indeed, some members of the Commission found it difficult to give a respectful hearing to those who were not prepared to state just how much it cost to haul a ton of mail a mile.

While admitting that the simplicity of the rule that rates should approximate the cost of service makes it attractive, Professor Adams declared that he could not accept the doctrine that reasonable rates must approximate the cost of service, because (1) it

is impossible to ascertain the cost of service with sufficient accuracy for this purpose, and (2) because the railways do not attempt to adjust the rate on any commodity to the cost of moving that particular commodity.[1]

After having disposed in this summary way of the arguments based on the cost of service, Professor Adams, for the time being, passes over the statements of the railroad men whose arguments are based on comparisons,[2] and presents his "fundamental principles relative to railway mail compensation." He says, quoting his words as far as possible, that the points which will be submitted in connection with a consideration of the fundamental principles relative to railway mail pay are (1) that European experience relative to railway mail transportion is not pertinent to the United States, (2) that the problem of railway mail pay must be approached as one of compensation, that word being given its regular interpretation, (3) that in view of the nature and history of the postal service the claim of public utility in determining what is reasonable compensation cannot be ignored, and (4) that the possibility of introducing economies into the business of transportation depends upon the increase in the volume of traffic, from which, in the absence of countervailing considerations, it follows that a form of traffic which increases most rapidly through a series of years should

[1] Testimony, Part II, pp. 4-7.

[2] Most of the railroad men compared their earnings from mail with those from express. This was the favorite comparison, it being held that the two services were similar in many respects.

show a relatively more rapid decrease in charges as compared with other traffic.

Now let us examine these fundamental principles. Professor Adams says in explanation of the first one that: "Very little can be gained from European experience respecting the questions of compensation to railways for transporting mail on account of the fact that, for one reason or another, European governments are interested in the financial success of the railways. Where the railways are the property of the government, as in Prussia, every item of railway expenditure appears as an appropriation in the budget of the state, and it is merely a matter of accounting, so far as the people who pay taxes and railway charges are concerned, whether the railways transport the mail for nothing, and thus enable the Post-Office Department to show a surplus, or whether the Post-Office Department is charged an arbitrary rate for carrying the mail, which would enable the railway department to increase the surplus by that amount.[1]

If by European experience Professor Adams means simply continental practice, no one probably will be disposed to find fault with his contentions. But popularly, at least, Great Britain forms a part of Europe, and, therefore, Professor Adams should not have directed his investigation simply to the continent of Europe. In Great Britain the relations of the Post-Office Department and the railroads are very much the same as in this country. In both countries there is private ownership of

[1] Ibid., p. 7.

railways. And further, our principles of jurisprudence do not depart greatly from those of English jurisprudence. Because of these considerations it seems to me especial attention should have been directed to the manner in which the British Government deals with the railways. And failing to find in Great Britain sufficient confirmation that the payments of our Government are either too high or too low, Professor Adams could much more profitably have turned his attention to Canada than to the continent of Europe. Having thus neglected the practice of those countries whose national and industrial life are adjusted to the same principles as our own, I cannot regard Professor Adams's treatment of his first point as satisfactory.

Although not much can be learned from British practice as to what constitutes reasonable compensation in dollars and cents, a great deal can be learned as to what is a fair method of ascertaining that to which the railways are entitled. In this country the schedule of pay is fixed arbitrarily by act of Congress. I say arbitrarily because the railways have no direct voice in determining the payments. In Great Britain, on the contrary, they participate in fixing the payments, for any company which does not regard the payments awarded by the Postmaster-General as adequate, can call arbitrators. The nineteenth section of the Act of 1838 reads:

> Every railway company shall be entitled to reasonable remuneration for any services performed by them in pursuance of this act with respect to the conveyance of mails, and such

remuneration shall be paid by the Postmaster-General. And any differences between the Postmaster-General and any railway company as to the amount of such remuneration, or as to any other question arising under this act, shall be decided by arbitration[1] in the manner provided by the act of the session of the first and second years of the reign of her present majesty, Chapter XCVIII, or, at the option of such railway company, by the [railway] commissioners.[2]

In regard to specific information as to what is regarded as fair pay for conveying the mail but little information is obtainable, for in Great Britain the Postmaster-General does not make public the contracts he enters upon with each of the railways. During the summer of 1898, the Second Assistant Postmaster-General, W. S. Shallenberger, was sent abroad by Postmaster-General Charles Emory Smith to make a careful investigation into the character and cost of railway mail transportation. In reporting to the Postmaster-General what he learned in Great Britain, Mr. Shallenberger says:

In reply to a question as to what was regarded a reasonable compensation for a mail train, I was told that it must not in any event exceed the revenue derived by the railway company from an average passenger train of like size. . . . . One of the contracts that I was permitted to see provided that the Postmaster-General and his officers may require the company to provide and run any express or special trains for the

[1] In case the Postmaster-General and a railway company cannot agree as to what is fair compensation, they may refer the matter to the award of two persons, one to be named by the Postmaster-General and the other by the company, and if these two persons cannot agree, then to a third person, to be appointed by the first two previously to their entering upon the inquiry.

[2] Report of Postmaster-General, 1898, p. 318.

conveyance of mails, etc., for a payment at the rate of 3s. 6d. for each and every mile such express or special *train* shall travel. This would be at the rate of 85 cents per running mile. In the testimony given by this office before the sub-committee of the Senate Committee on Appropriations, in May last, the cost per running mile of one of our full railway post-office *cars*, including transportation pay, was estimated at 25½ cents. Considering the small size and light weight of the cars on English roads, it is perhaps fair to assume that three of our full [sized] railway post-office cars would equal the average special train provided for in the contract which I have named.[1]

If the terms of the contract just cited are typical, it appears that the compensation given the railroads in Great Britain for running special mail trains is somewhat higher than it is here. In comparing payments it must also be held in mind that there the conditions of the service are not so onerous as with us. In Great Britain the Post-Office Department erects and maintains at its own expense all mail cranes and catchers; the railways are also relieved from conveying the mails to and from the post-offices, and when railway post-office clerks are injured in railway accidents, and judgment is obtained against the company, the Post-Office Department is liable at least for one-half the damage; and finally, but most important of all, the railways are not expected to run their mail trains at a higher rate of speed than their best passenger trains maintain.[2]

[1] Ibid., p. 320. The italics are mine.
[2] Ibid., p. 319.

In Canada, as in Great Britain, the railways are not paid on the basis of the average weight carried, so no direct comparisons on the basis of weight can be made with our payments. From information collected in the autumn of 1898 for the Postal Commission by Mr. V. J. Bradley, superintendent of the railway mail service of the New York post-office, it appears that the cost per mile of railway mail transportation in Canada, regardless of facilities furnished or weight carried, was 8.9 cents.[1] In the United States for the fiscal year 1898 it was 10.93 cents.[2] Although on its face this comparison seems unfavorable to our railways, it is in reality very favorable. This is true for several reasons. In the first place, Mr. Bradley, in ascertaining the average amount paid in Canada per mile for railway mail transportation, did not include the payment of about $650,000 to the Canadian Pacific by the imperial government for the overland transmission of mail to the Pacific.[3] In the second place, the average weight of mail carried in Canada is insignificant in comparison with the average weight transported here. In this country most of the railways radiating from the large cities run fast mail trains, largely or exclusively devoted to mail, while in Canada there are no fast mail trains, and in fact there is but a single route on which full railway post-office cars are run.[4] It thus

[1] Testimony, Part I, p. 485.

[2] Report of the Postmaster-General, 1898, p. 301.

[3] Testimony, Part I, p. 484.

[4] This is the Montreal-Toronto route, which is 333 miles in length. The cars on this route are forty feet in length, and there are two

appears that for baggage and apartment car service the railways of Canada receive almost as much per mile as our railways receive for service that consists largely of full-sized Post-Office cars and full trains. In Canada the conditions under which the railways transport the mail are not so burdensome as in this country. There, as a general rule, the side and terminal messenger service is performed by the Post-Office Department at its own expense. In case the railroads perform this service, they generally receive extra compensation for doing it. In Canada the railways are also almost wholly relieved from the porterage of the mails at the stations. The railways render some assistance, but about 90 per cent. of this work is done by postal employes. At stations where transfer agents are assigned by the Post-Office Department they do not merely supervise the transfers, as in this country, but lug the mail as well.[1]

Now let us pass to Professor Adams's second fundamental principle for determining what is fair pay for transporting the mail. In his testimony before the Postal Commission he says:

> The next point is that the problem of railway mail pay must be approached as one of compensation, that word being given its regular interpretation.
>
> . . . . . .
>
> The service rendered by the railways in carrying the mail

round trips made daily, except Sunday, when a single round trip is made. To maintain this service seven cars are furnished, four in use and three in reserve.—Testimony, Part I, p. 482.

[1] Ibid., pp. 482, 483.

is of the same sort as that of carrying passengers, express, or freight. The fact that in the case of mail the Government is the agency through which the service is rendered does not change the nature of the service. Such I understand to be the principle that must be recognized by your Commission. This is implied in the Constitution itself, and has been expressed in many state decisions. Much testimony might be submitted to show that the above situation is correct, and that consequently the principle of compensation should be acknowledged in discussing the question of adequate pay. . . . In 1874 a select committee of the United States Senate was appointed to inquire into "the nature and extent of the obligations subsisting between the railway companies and the postal service of the country." This committee came to the conclusion that the Government can compel them [the railways] to transport the public mails, but that "reasonable and just compensation should be paid for such service." In this regard, as also in the case of condemnation of a railway which refuses to carry the mail, the argument of the committee proceeded upon the principle enunciated by the fifth section of the amendments to the Constitution, which reads: "Nor shall private property be taken for public use without just compensation." It seems evident, then, that the question of railway pay for postal service among peoples who enjoy English jurisprudence is a question of compensation, and that all those principles of law and political science that cluster about the word "compensation" are pertinent, to a greater or less degree, to the problem in hand.[1]

Probably no one will be disposed to question Professor Adams's second fundamental principle, and probably there are but few who would dignify the simple

[1] Testimony, Part II, pp. 8 and 9.

contention "that the problem of railway mail pay must be approached as one of compensation," by calling it a fundamental principle. It seems to me Professor Adams might fairly have assumed that the members of the Postal Commission would freely grant that "the principle of compensation should be acknowledged in discussing the question of adequate pay," for compensation and adequate pay mean the same thing. All are agreed, I believe, that the railways should receive compensation or adequate pay for the services they render. From the questions put to the witnesses who appeared before it, it may be fairly inferred that the Postal Commission from the very beginning of its investigations granted the contention that Professor Adams labors to establish, for it began at once the search for information as to what is reasonable pay for carrying the mail.

The first two fundamental principles laid down by Professor Adams do not shed much light upon what is reasonable pay for transporting the mail. They in reality merely prepare the way for the third and fourth principles, which contain the meat of what Professor Adams has to say on what is reasonable compensation.

Passing from his second to his third principle, Professor Adams says:

> The third point, found under the general heading "Consideration of fundamental principles relative to railway mail compensation," is as follows: The Commission cannot, in view of the nature and history of the postal service, ignore the claim of public utility in determining reasonable compensa-

tion. . . . . This consideration assists the solution of the problem in three ways. First, it suggests the correct classification of the mail service among the several transportation services.

. . . . . .

The railways undoubtedly have the right to insist, from their point of view, that the character of the facilities furnished for the mail service should be taken into account in fixing compensation, and the Government is obliged to recognize this claim, because they who invest in railway property are a part of the state whose private interests are included in the interests which the state must guard; but, on the other hand, the Government has the right to insist that the transportation of mail is essential, not alone to the present advantage of the public, but to the healthful and permanent development of the state. It has the right openly, publicly, and without apology, to put in practice a rule acknowledged by railway management. A railway manager is willing, for example, to carry coal at a very low rate, even at the risk of incurring loss, because he knows that coal is potential industrial development, and what he loses on the coal traffic becomes for him a gain on the transportation of high-class freight, the product of the mills and factories which the distribution of the coal renders possible.

. . . . . .

This line of reasoning is, even in a higher degree, pertinent to the transmission of intelligence, because intelligence is an essential consideration for growth and development. As the distribution of coal, which is latent manufacturing power, is essential to the upbuilding of manufactories, so the diffusion of intelligence is a fundamental condition of all social and industrial evolution. The meaning of all this is evident. When the Government, in considering the question of compensation for carrying mail, finds it necessary to classify the

mail service in the general schedule of services rendered, it will, if it accept the principle of public utility as the ruling consideration, conclude that the transportation of mail should be classed among those services which minister to the development of the process of production rather than to the satisfaction of wants through the transportation of the products. From the social point of view there is a difference between the carrying of mail and the carrying of coal, and it is right that a schedule of rates conforming to the principle of public utility should recognize this difference. But of all things transported by rail, intelligence is the most essential to social and economic advantage, and therefore is in the highest degree amenable to the consideration of public utility.

. . . . . .

This principle of public utility will, in the second place, be of assistance in bringing such action as the Commission deems wise into harmony with the generally accepted rule relative to reasonable railway transportation.

Now the practical effect of that point of view, if conceded, would be, I think, to recognize that from the public point of view we have a right—the Government has a right—to force the mail compensation rather low, provided it does not force it so low that the question of compensation ceases to be a question of compensation and becomes a question of taxation, and the most that statistics can do in this matter is to set up the broad mark between those two lines.

. . . . . .

The private interest in railway charges is limited to the claim that the gross revenue of railways should be adequate to cover operating expenses, fixed charges, and a fair return to stockholders. But this amount having been guaranteed, the manner in which this gross amount is to be collected from the shippers is a matter of public policy, and you can readily see how this view of the case clears the ground for such action

relative to compensation for carrying the mail as may commend itself to Congress. The application of the principle of public utility classifies mail transportation with freight; it classifies it among the fundamental or social services of railways, and it justifies an unusually low rate upon mail transportation, provided this is essential to rendering the important service undertaken by the postal department, and provided that the railways are permitted to recoup themselves by higher rates from other relatively less important services.

. . . . . .

The third scope of this principle of public utility is, that the combination of the idea of public utility with that of compensation emphasizes the distinction to be made later between the transmission of intelligence, which is a primal postal function, and the transmission of merchandise or bulky literary products, which as a postal function is of comparatively recent development.[1]

. . . . . .

While I cannot agree with all that Professor Adams puts forth in his third fundamental principle, yet most of his statements may well be accepted. The cost of service theory of rate-making is abandoned. And as would be expected, he assumes that it is impossible to pass upon the fairness of any railway charge independently of the other rates with which it forms a system. In other words, he contends that the whole classification must be examined before it is possible to pass judgment upon any particular rate. He premises that a railway company is entitled to a fair return upon the value of its

[1] Ibid., pp. 9–11. In revising his testimony Professor Adams altered this citation somewhat, but as the changes are merely verbal I have allowed his original statement to stand.

property. And that the problem to be solved is the proportion in which the different commodities transported by the railway shall be called upon to contribute to this end. Or in other language, how are the services rendered by the railways to be classified? He declares that the "social services" should be performed at unusually low rates. After stating his theory of rate-making, he says: "The application of the principle of public utility classifies mail transportation with freight; it classifies it among the fundamental or social services of railways, and it justifies an unusually low rate upon mail transportation." From this statement it must be inferred that in Professor Adams's grouping of the services rendered by the railways there are some which are not social. At this point I depart from Professor Adams. All the services rendered by railways are social services.

It appears to me that Professor Adams's theory is also incomplete. As I have before stated, I regard all the services performed by the railways as social services. And I would advance as a fundamental proposition that the rates on these services should be so adjusted as to make the railways promote the public welfare in the largest possible degree, it being understood that railway investors are first of all entitled to a fair return upon their property. In the presentation of his fundamental principles Professor Adams takes, or at least appears to take, a one-sided view of the situation. In a certain sense he looks upon railway property and employes as outside of the social

community, but ministering to it. And consequently, in rewarding the railways for services rendered, he says, society is to consider merely the importance of the service to itself, and then fix the compensation on the basis that services of great social importance should be done at very low rates. This view appears to me to be unsatisfactory. Railway property and employes are a part of the community, and therefore the cost of performing a service in labor and capital must also be considered; that is, society is interested in net results. To make my point clear, let me illustrate. Suppose that at station A, for productive purposes, a ton of coal is equal to a cord of wood, but that the cost in labor and capital of transporting a cord of wood from station B to station A is twice that of hauling a ton of coal.[1] Obviously it would be greatly to the interest of society as a whole for the people at station A to use coal, and therefore a system of rates based solely on the utility of coal and wood to the people at station A would not result in the most effective use of the railroads to society as a whole. Professor Adams may reply to this argument that my theory is of no practical value because it is impossible to ascertain the cost of moving different commodities. In answer to this contention I would say, while it is freely admitted that it is impossible to ascertain accurately what it costs to render any particular service, yet in most cases it is possible

[1] It must not be supposed that in practice it is possible to speak with this definiteness.

to estimate approximately what is the relative cost of transporting different commodities; at least with accuracy enough to promote greatly the effective use of railways. This contention Professor Adams has, at least in a measure, admitted.

The ground upon which I differ from Professor Adams is also in part the ground upon which I differ from Mr. Cowles. In his General Freight and Passenger Post Mr. Cowles contends that distance should be disregarded in fixing freight and passenger rates. In my opinion it should not be, for if it were, the railroads would not be used most effectively. My assertion is based upon the ground that while we may not be able to tell exactly how much more it costs to haul a ton of freight 110 miles than it does to haul it 100 miles, yet we do know that under exactly similar conditions it costs some more, and that under the same conditions it costs much more to haul a ton of coal 1,000 miles than 100 miles, and that, therefore, a system of rates which makes it indifferent to a shipper whether he sends his products 100 or 1,000 miles does not result in the greatest good to society.

It is one thing to enunciate a general principle, but it is quite another matter to apply this principle. Professor Adams declares that railway rates should conform to the principle of public utility, but makes no attempt to classify according to this principle, even the most important of the many commodities carried by the railways. In one place he states that the prac-

tical effect of the adoption of his principle would be "to force the mail compensation *rather* low,"[1] and in another place he asserts, with certain provisos, that "the application of the principle of public utility . . . . justifies an *unusually low* rate on mail transportation."[2] And in still another place he declares that "of all things transported by rail, intelligence is the most essential to social and economic advantage, and therefore is in the highest degree amenable to the consideration of public utility."[3] This contention is a debatable one. First of all come the physiological wants of man; that is, his necessities as an animal. Food, clothing, and shelter man must have. I am therefore inclined to rank freedom of personal movement higher than I am the rapid diffusion of intelligence, for the former, it seems to me, promotes the acquisition of these things more than the latter does. For instance, the ability to move from the unproductive lands of New England to the fertile lands of the central West has resulted in greater economic and social advantage to the country than any quantity of literature circulated in New England on the subject of improved farming could have brought about.[4]

A full discussion of the construction of a schedule,

[1] Testimony, Part II, p. 10.

[2] Ibid., p. 11. The italics are in both cases mine.

[3] Ibid., p. 10.

[4] The representatives of the railways could, it seems to me, very properly contend that so long as the Government does not itself recognize the principle of public utility in fixing its rates of postage, it should not adopt this principle in fixing their compensation.

based on the principle of public utility, will not be attempted here. But before leaving this point I would like to raise the question as to whether or not the thoroughgoing application of the principle of public utility to rate-making would radically change existing railway tariffs. Very likely the framers of such a schedule of railway rates would quickly meet the difficulties encountered by legislators in drawing up tariff bills. They would probably early discover that in order to raise sufficient revenue to sustain the railways it would be necessary to rely very largely upon the commodities which are essential to social and economic well-being, just as legislators have found that if sufficient revenue is to be raised the necessities of life must be the main reliance of governments. Just how much the public would profit by the systematic application of Professor Adams's third fundamental principle of rate-making can be estimated only after the most painstaking and exhaustive study of existing rate schedules, and such an examination has not yet been made.

Perhaps the application of the principle of public utility would not greatly alter existing railway tariffs, for another reason. The better class of railway managers now fully realize that their welfare is dependent upon that of the people whom they serve, and it may be that an examination of railway schedules would show that railway men in adjusting their rates have been guided, in some measure at least, by this principle. That such is the case is admitted by Professor Adams. Brick, stone, lum-

ber, coal, coke, ores of the base metals, and food products consumed by the masses are carried at low rates. Luxuries, on the other hand, pay high rates. In other words, the articles consumed productively are favored by railway managers, while those consumed unproductively are discriminated against. This is in consonance with Professor Adams's principle of public utility.

Although the principle of public utility is applied to the movement of freight, it is applied much more thoroughly to the transportation of passengers. As rates are now adjusted very few railroads in the United States obtain any net returns from their passenger train service, and the great bulk of the railways would probably be better off if they altogether removed their passenger trains, provided their freight train earnings were not affected. During the year 1898 the average revenue per train mile earned by the passenger trains of the United States was $0.974, while the average revenue per train mile earned by the freight trains was $1.731, and the average cost of running all trains per mile was $0.956.[1] While the cost of running freight and passenger trains, respectively, cannot be ascertained with exactness, it is generally estimated that it costs as much per mile to run passenger as freight trains. If this is true, passenger trains contribute almost nothing to the fund for the payment of taxes, of interest on bonds and dividends to stockholders.[2] As the passenger train mileage of all our railways does not fall far

[1] Statistics of the railways of the United States, 1898, p. 93.

[2] The statement just made of the average cost of running trains does not include these items. It is thus misleading.

short of that of freight trains,[1] it is seen that the principle of public utility has already been widely applied in fixing railway charges. This follows because those services which especially promote social well-being, namely, the transportation of passengers and mail, are performed by the railways at less than cost. I say less than cost, because the passenger trains contribute almost nothing to the payment of taxes, interest and dividends.

It being granted that the movement of passengers and mail is among the most important of the services rendered society by the railways, and as it must be conceded that they are carried at less than cost, Professor Adams must admit that the principle of public utility is now applied to railway charges. And consequently all that remains for discussion is the question whether or not the principle is applied with sufficient thoroughness. According to the limitatious he has himself placed upon the application of his principle the limit has been passed, for he says the practical effect of the adoption of the principle of public utility would be that—

> We have a right — the Government has a right — to foerc the mail compensation rather low, provided it does not force it so low that the question of compensation ceases to be a question of compensation and becomes a question of taxation, and the most that statistics can do in this matter is to set up the broad mark between these two lines.[2]

[1] During the year 1898 the aggregate passenger train mileage was 341,526,769, and the aggregate freight train mileage 503,766,258. Ibid., p. 69.

[2] Testimony, Part II, p. 10.

If it be granted that passenger train earnings should not be forced still lower than they are now, all that remains for discussion is the proportion in which the traffic moved on passenger trains should be made to contribute to the support of the passenger train service.

If the diffusion of intelligence and the movement of passengers are of about equal social importance, then, according to the principle of public utility, they should contribute in a like ratio to the maintenance of the passenger train service. If mail and passenger earnings do conform to this standard, then the present mail rates, whose fairness it is our object to test, already satisfy the requirements of reasonableness set up by the principle of public utility. How can it be ascertained whether this conformity exists ? A comparison on the basis of weight is unsatisfactory, because (1) the weight of the passengers would have to be estimated, and because (2) the dead weight hauled, that is, the weight of the cars, cannot be assumed to be in proportion to the weight of the mail and passengers. The space basis cannot be accepted for the second of the reasons just stated. While not entirely satisfactory, probably a comparison based on the gross tonnage comes nearest satisfying all requirements of a fair test. By gross tonnage I mean the weight of the car plus its contents, whatever they may be. Several of the witnesses who appeared before the Commission submitted arguments based on this comparison. Their results may be found in brief compass in the subjoined table:

Year ending.	System.	Mail Pay per Mile per Gross Ton.	Passengers. Pay per Mile per Gross Ton.
		Cents.	Cents.
June 30, 1897	Louisville and Nashville[1]	0.610	0.685
June 30, 1898	Southern Railway[2]	0.745	0.581
June 30, 1897	All the railways of the United States[3]	0.632	0.700

If the figures presented in this table are reliable, it would have to be conceded that, on the basis we have accepted, the railways are not overpaid for carrying the mail. Mr. Stuart R. Knott, who presented the argument of the Louisville and Nashville Railroad Company, did not state how he obtained the gross tonnage hauled one mile. At another point in his argument he states that "the sixty-foot railway post-office cars, constructed in accordance with Government requirements, weigh 89,000 pounds."[4] This may be true, but if he assumes that the average weight of the entire equipment of postal cars of the company he represented was 89,000 pounds, I should feel that he somewhat overstates the number of gross tons hauled one mile in the transportation of mail, for the old railway post-office cars do not weigh so much as the new ones. In fairness to the other railways of the United States, it must be stated that conditions on the Southern Railway are not typical. It is one of the very few systems of the country that receive the so-called

[1] Senate Report No. 991, p. 65, LV Congress, second session.
[2] Testimony, Part I, p. 698. [3] Ibid., Part II, pp. 88, 89.
[4] Senate Report No. 991, p. 73, LV Congress, second session.

special facility pay, and the mail for a very large portion of the South is concentrated on this line. Several Postmasters-General in succession have refused to recommend this subsidy in their annual estimates, but one Congress after another has continued it by special appropriation. The average earnings per gross ton per mile for all the railways of the United States were taken from the second statement submitted to the Postal Commission by Mr. Julius Kruttschnitt, general manager of the Southern Pacific Company. His results cannot be accepted as conclusive, for they are in a measure based on estimates. It would have been much more satisfactory to have had from Mr. Kruttschnitt carefully compiled data for the Southern Pacific Company.

In view of the difficulties inherent in obtaining the gross ton mileage moved respectively in the mail and passenger business, I have been inclined to turn to car-mile and train-mile earnings for light on the reasonableness of the mail compensation. While these bases do not yield results that are wholly satisfactory, nevertheless, as railway records are now kept, they give better results than the method just presented.[1]

In the following table the average earnings from mail and passengers per car per mile are submitted :

[1] This basis was later adopted by Professor Adams in his final statement to the Postal Commission, submitted after this chapter was originally printed. In this statement the test on which his finding turned wholly ignored the theory of public utility, and rested solely on train-mile cost and train-mile earnings.

Year ending.	System.	Average Earnings per Mile of 60-foot Mail Cars.	Average Earnings per Mile of all Passenger Cars.
		Cents.	Cents.
June 30, 1897	Chicago and North-Western[1]	21.66	21.83
June 30, 1897	Louisville and Nashville[2]	18.79	20.06

The data for the North-Western, I have been assured, were very carefully collected. The total mileage of the mail cars could be ascertained with absolute accuracy, also the mileage of the apartment cars. As the length of the mail cars and the apartments devoted to mail were known, it was a mere matter of arithmetic to find out the equivalent mileage in terms of 60-foot cars. The space allotted to pouches generally had to be estimated, but not in all cases, for on some of the through trains a fixed space is set apart for mail. No great error could be introduced because of the space assigned to pouches, for this space, reduced to car miles, amounted to but 5 per cent of the total. It does not seem possible because the space allotted to pouches was estimated, an error was introduced into the table of 2 per cent. at the outside. The average car-mile earnings of the passenger cars has been recorded for some years, so there is probably no error at all in the statement of the earnings of the passenger equipment.

Unusual value attaches to this comparison of the

[1] Computed from information given on pages 200 and 205 of Testimony, Part I, and on pages 34 and 57 of the Annual Report of the North-Western Railway for 1897.

[2] Senate Report No. 991, p. 64, LV Congress, second session.

mail and passenger earnings of the North-Western, because it is a large system, and has both light and heavy mail routes. That its mail earnings are typical is shown by the fact that while its average earnings per ton per mile for carrying the mail during 1897 were 12.68 cents, the average earnings for the whole country were 12.56 cents.[1] The passenger earnings of this company are also fairly representative. During 1897 the average per mile earnings of passenger trains on the North-Western were 85.9 cents, and the average per mile earnings for the whole country were 93.9 cents.[2] It is to be noted that the average length of the passenger cars is not stated, but I believe it may be assumed that it is less, rather than more, than 60 feet. While the sleepers exceed 60 feet in length, the standard coaches of this company are but 54 feet in length, and the aggregate mileage of the latter is several times that of the former. In the matter of dead weight the mail cars also stand about midway between the coaches and sleepers, and therefore the dead weight of the equipment hauled in transporting mail and passengers can probably also be disregarded without fear of greatly impairing the accuracy of the results.

As Mr. Knott did not state fully how the average car-mile earnings of the Louisville and Nashville were obtained, judgment as to their reliability cannot be passed. But it is due to Mr. Knott to state that no criti-

[1] For the average ton-mile earnings of the North-Western, see Testimony, Part I, p. 205, and for the average earnings of all the railways, see ibid., Part II, p. 45.

[2] Statistics of the Railways of the United States, 1897, pp. 82 and 358.

cism can be made of his methods so far as they are set forth in his argument. The possibility of introducing a small error into the car-mile earnings of mail he has avoided by allowing no space whatever for the carriage of mail in baggage cars in closed pouches. This space would of necessity have to be largely estimated. It is to be noted that he does not give the average length of the mail cars. It may be that the average length of the mail cars on the Louisville and Nashville is not equal to the average length of the baggage cars, coaches, diners, and sleepers. On this point, however, I have no information.

Comparisons have now been made of mail and passenger earnings on the basis of the gross tonnage hauled in moving mail and passengers respectively, and also on the basis of car-mile earnings. There is still one other comparison which I wish to introduce. Although it is of limited scope, it is nevertheless of great importance. It clearly shows there is still competition between railways, and although railways fiercely compete for the mail traffic, it does not follow, as has often been argued, that this business is profitable. As is well known, the North-Western and the Burlington run fast mail trains between Chicago and Council Bluffs. Both the North-Western and the Burlington have two fast mail trains west-bound and the latter has one east-bound. As the Chicago-Council Bluffs route is the heaviest route these companies have it would naturally be expected that these trains would yield large returns. The average train-mile

earnings of the mail trains of the Burlington, whose earnings are the larger, and the average train-mile earnings from all sources of all the passenger trains of this system are set forth in the following table:[1]

System.	Mail Trains.			Passenger Trains.
	Designation of Train.	Earnings per Train Mile.	Average Earnings per Mile of the Three Trains.	Average Earnings from all Sources per Train Mile of all Passenger Trains.
Chicago, Burlington and Quincy Railroad Company	No. 15, west-bound No. 7, " " No. 8, east-bound	$1.33 .82 .61	$0.92	$1.09

After the presentation of this table it scarcely need be said that the fast mail trains of these two systems between Chicago and Council Bluffs cannot be a source of profit. The average speed of the fastest of these trains is higher than that of any other fast mail train in the country. The fast-mail trains between New York and Chicago and Council Bluffs and San Francisco are slow trains compared with the trains of the North-Western and the Burlington.

The fourth and last of Professor Adams's fundamental principles in accordance with which railroad rates should be adjusted reads as follows:

[1] The data from which the train-mile earnings of the mail trains were computed were obtained from Mr. E. L. West, superintendent of railway mail service at Chicago. The earnings of passenger trains on the Burlington were obtained from the auditor of the Burlington, Mr. C. I. Sturgis. In train No. 7, except on Tuesdays, there is an express car from Chicago to Union Pacific Transfer. Some of the mail cars hauled west loaded are returned empty.

The possibility of introducing economies into the business of transportation depends upon the increase in the volume of traffic, from which, in the absence of countervailing considerations, it follows that a form of traffic which increases most rapidly through a series of years should show a relatively more rapid decrease in charges as compared with other traffic.[1]

It will be remembered that before Professor Adams presented his fundamental principles of rate-making he took the ground that the reasonableness of a rate could not be judged from the cost of service because it is impossible to ascertain the cost service. He also assumed, in substance at least, that even if it were possible to compute the cost of service it would not be advantageous to the public to adjust rates on that basis. In other words, that the interests of the public would be best advanced by encouraging with low rates the movement of those commodities which in the largest measure promote social welfare, and by discouraging by high rates the movement of such articles as are either of little value or are positively inimical to the interests of society. As I have before stated, Professor Adams has not presented his views perhaps as explicitly as they have just been set forth, but he is logically bound by his utterances to the propositions I have stated.

Professor Adams's fourth fundamental principle is not in harmony with his other fundamental principles. It was asserted that public utility should be the fundamental consideration in rate-making. This being true, I cannot

[1] Testimony, Part II, pp. 11 and 12.

understand why, as a broad proposition, rates on any particular commodity should be lowered just because the movement of that commodity has largely increased, thereby making possible the introduction of economies into the business of transportation. On the contrary, such an increased movement might be assigned as a sufficient reason for the rate being fixed higher. Whether the rate should go up or down would depend upon whether, after all things had been considered, the enlarged movement of the article under consideration would be the best for society.

The preceding pages have been largely devoted to the statement and examination of Professor Adams's theory of rate-making. The succeeding pages will be given over to an examination of his data. In explaining the fundamental principles underlying the law of 1873 he says:

> There is no business connection between post-office receipts for services rendered the public and post-office payments to railways for mail transportation. The former disregards distance; the latter is in proportion to distance. For a package or a letter sent a short distance the Government receives a profit; for a package or letter sent a long distance it pays the railway more than it receives. The length of haul where profit turns into a loss for the respective classes of mail matter is as follows:[1]

	MILES.
For first-class mail	1,782
For second-class mail	56
For third-class mail	446
For fourth-class mail	891

[1] Ibid., p. 12.

According to this table, what the Government receives in postage is quickly swallowed up by the railways. The postage on second-class matter, which pays the lowest rate of postage, scarcely suffices to pay the railways for hauling it out of the county in which it is published, and the whole of the postage on first-class matter is barely enough to pay its railway transportation two-thirds of the distance across the continent. The situation is not nearly so bad, however, as it appears at first blush, for Professor Adams later explains that:

> The above classification rests on . . . . the assumption that the Post-Office Department pays to railways 35 per cent of what it receives. It does not take account of the fact that some letters and packages weigh less than the weight paid for by the shipper, or that the 35 per cent referred to does not make allowance for the deficit in the post-office accounts made up from taxation.[1]

To say the least, Professor Adams's exposition is not skillful. It is not only confusing, but also highly unsatisfactory, to be informed, for example, that when first-class mail is hauled 1,782 miles, the entire amount received for postage must be turned over to the railways in payment for transportation, and later on to be told that only 35 per cent. of the postage is paid to the railways for hauling first-class mail 1,782 miles, and still later to be informed that even this statement is based on the assumption that letters and packages never weigh less than the maximum weight paid for

[1] Ibid.

by the sender. Numerous tests have shown that the average amount of postage paid per pound on letters is 85.6 cents,[1] or nearly three times the amount that would be paid did the weight of each letter conform to the postage placed upon it. It scarcely need be called to any one's attention that the letters whose weight is all the stamps put upon the envelope will carry are very rare indeed, and that therefore Professor Adams's assumption that on the average each pound of letters pays 32 cents in postage is too wide of the truth to be accepted even as a working basis. Instead of the payment for railway transportation absorbing the whole of the revenue derived from postage on letters when the haul reaches 1,782 miles, as stated by Professor Adams, the payments to the railways would not on the average equal the postage paid until the haul reached 13,696 miles. This being true, Professor Adams's modifiers should have been incorporated in his table, for no one anticipates that the neglected factors will materially change results. Figures that must be multiplied by 7.6 to make them conform to the facts can hardly be a satisfactory guide for action.[2]

The modifications thus far considered should, for the sake of clearness and accuracy, have been introduced earlier. The next modifying clause should not have been introduced at all, for it is not relevant.

[1] Report of the Postmaster-General, 1899, p. 7.

[2] For a discussion of this subject that follows slightly different lines, see The Postal Deficit, by Professor H. T. Newcomb, pages 105 and 106.

Professor Adams explains that in computing the table just introduced he made "no allowance for the deficit in post-office accounts made up from taxation." For one I cannot understand why, in ascertaining the distance at which the cost of railway transportation at a specified rate eats up the postage on a package, consideration should be given to the fact that there is a deficit in the Post-Office Department. Professor Adams in this case evidently did not have very clearly in mind just what he wished to present.

The next assertion, or rather conjecture, of Professor Adams is also very much out of line with the facts. It shows plainly that he is either wholly unacquainted with the real nature of the mail traffic, or that he spoke without sufficient reflection, for just the opposite of that for which he contends is true. He says that the mail traffic is a uniform one, and that consequently the mail equipment of the railways is fully and economically employed; or, in other words, that the hauling of but partially loaded and empty cars is reduced to a minimum. His contention, stated in his own language, is as follows:

> Among the considerations favorable to the argument that railway mail compensation might with propriety be reduced are the following: This traffic is a sure traffic to the railways; it is a steady traffic, and while it may be true that a heavier weight of mail passes west than passes east—which cannot be said, of course, of freight—it does not vary from month to month as does the passenger traffic. It is distributed with a fair degree of equality. I assume, though I have not gathered

figures to test the assumption, that year in and year out the mail equipment of the railways is used more nearly to its full capacity than the freight or the passenger equipment. Here again we need more light.[1]

While on several points positive information is wanting, it can, nevertheless, be asserted on the basis of the facts we do possess that Professor Adams's conjecture is diametrically opposed to the facts. The mail traffic is not evenly distributed through the year or the month, or even through the week. The statement that the mail traffic "does not vary from month to month as does the passenger traffic" is merely an assumption. The business of the post-office fluctuates during the year as does all other forms of business. In fact, the operations of the post-office are a very good barometer of conditions in the business world. Great business activity means great activity in the post-office, for it is the instrumentality through which the modern business world largely operates. During the months of the year when business is at a low ebb the transactions of the post-office are limited and the passenger traffic is light, for the bulk of those who travel do not travel for pleasure, but on business, and when business is active the passenger trains are most largely patronized.

The mail traffic is not uniform through the month, for the movement of magazines is not equally distributed. These periodicals are thrown into the mail about the twentieth of the month, and practically disappear early

[1] Testimony, Part II, p. 25.

in the new month, to reappear again about the same time as during the preceding month.

The movement of mail is not even uniform during the limited period of a week. Sundays and Mondays the mails are much lighter than on other days. The accompanying table shows the wide fluctuations in the movement of mail. It covers the shipment of mail out of Chicago over the railways during the recent weighing period of thirty-five days ordered by the Postmaster-General:

WEIGHT OF MAIL ORIGINATING IN CHICAGO AND DISPATCHED BY RAILROADS FROM OCTOBER 3 TO NOVEMBER 6, 1899.

1899.	Pounds.	1899.	Pounds.
October 3, Tuesday	312,718	October 21, Saturday	242,545
" 4, Wednesday	316,845	" 22, Sunday	147,325
" 5, Thursday	288,373	" 23, Monday	195,516
" 6, Friday	293,902	" 24, Tuesday	239,944
" 7, Saturday	276,844	" 25, Wednesday	279,637
" 8, Sunday	143,577	" 26, Thursday	273,987
" 9, Monday	111,273[1]	" 27, Friday	262,794
" 10, Tuesday	250,196	" 28, Saturday	257,172
" 11, Wednesday	286,198	" 29, Sunday	146,280
" 12, Thursday	289,782	" 30, Monday	241,868
" 13, Friday	271,459	" 31, Tuesday	313,586
" 14, Saturday	238,458	November 1, Wednesday	311,274
" 15, Sunday	143,711	" 2, Thursday	315,670
" 16, Monday	197,274	" 3, Friday	299,756
" 17, Tuesday	270,080	" 4, Saturday	279,430
" 18, Wednesday	291,283	" 5, Sunday	152,380
" 19, Thursday	319,251	" 6, Monday	225,758
" 20, Friday	269,280		

There are still other peculiarities about the movement of mail that make it impossible to handle this traffic

[1] Holiday.

economically. As you go farther and farther west the population becomes sparser and sparser. Consequently, as the mail trains proceed on their westward journey, particularly as they leave the large cities, the weight of the mail carried gradually diminishes, for at every station more mail is thrown off than is taken on. In this way the weight of the mail is gradually reduced, so that by the time the trains from Chicago reach the Missouri River they are carrying but little mail. This gradual tapering of mails like a funnel as the trains move westward precludes economical loading. In the case of freight and passengers, as the traffic diminishes cars can be removed from the trains and trains can be combined. This cannot be done in the case of mail trains, for these trains must maintain such a high rate of speed that time cannot be taken for the removal of cars. Where there is but a single mail car on a train, this must go through to the end of the route regardless of the diminished amount of mail there may be in it, for time cannot be taken to transfer this mail to an apartment car, and for the removal of the mail car from the train. From what has been said it should be evident that mail cannot be loaded so economically as freight. A mail car may leave Chicago with all the mail that can be separated in it, but before it reaches Omaha it may be nearly empty. Freight cars, on the other hand, except in rare instances, go through to their destination with their full load. The mail traffic is too limited in volume to permit of economical loading.

Mail equipment cannot be used to anywhere near its full capacity for still another reason. The west-bound movement of mail greatly exceeds the east-bound. This follows because papers and periodicals, broadly speaking, circulate west of the point at which they are published. It scarcely need be stated that the bulk of the mail is made up of printed matter. The preponderance of the west-bound movement over the east-bound is reflected by the following statement received from the second assistant postmaster-general, Mr. W. S. Shallenberger, of the traffic on the heaviest routes running from Chicago to the northwest, west, and southwest.

Railway.	Route.	Percentage of the Total Carried Northwest, West, or Southwest.	Pounds Carried Northwest, West, or Southwest.	Percentage of the Total Carried Northeast, East, or Southeast.	Pounds Carried Northeast, East, or Southeast.
North-Western	Chicago-Milwaukee	63	21,933	37	12,881
St. Paul	Chicago-Milwaukee	70	88,370	30	37,873
North-Western	Chicago-Winona	72	10,899	28	4,239
St. Paul	Chicago-Kittridge	60	8,843	40	5,896
North-Western	Chicago-Union Pacific Transfer	70	34,614	30	14,834
Rock Island	Chicago-Davenport	73	23,635	27	8,742
Burlington	Chicago-Burlington	79	109,078	21	28,996
Santa Fé	Chicago-Kansas City	70	12,761	30	5,469
	Totals		310,133		118,930

After considering all the peculiarities of the movement of mail, I doubt very much if on the average the railway post-office cars are loaded with one-third of the amount of mail that can be conveniently worked in them.

This, of course, is not an exact computation. But, on the other hand, it is not merely a guess. That it is not simply a guess is shown by the fact that the west-bound movement on the routes just considered is nearly three times the east-bound, from which it follows that the cars on their return trip were, at best, but little more than one-third loaded. In conclusion, let me state, although it hardly seems necessary to do so, that what has been said in regard to the economical, or rather non-economical, loading of cars is not affected by the fact that the Government pays the railways on the basis of the average weight carried over the whole route per day. The average is but the smoked glass that hides the true situation, or the great diversity that prevails. This is so simple a proposition that I am quite at a loss to know how to make it plainer than I have already made it.

Professor Adams's discussion of the cost of running trains at high speed also leaves much to be desired. It is contradictory; it is certainly not exhaustive, and I question if he attaches sufficient importance to one of the two elements of increased cost of high speed regarded of enough weight to merit consideration. He says:

> Much is said in the testimony before the Commission and in reports respecting an allowance in pay for speed of carrying the mails. Without questioning the importance of speed or denying that it is an element in cost, though I think its importance overrated, it should be understood that the act of 1873 does, in an indirect manner, make allowance for speed. . . . . Whether adequately or not is another question.

So far as speed is concerned, the expensiveness of speed to railways is the fact that they cannot make large hauls. The absolute expense, as reflected in the operating expenses, is overestimated, and is overestimated in much of the testimony, but it is not overestimated if we consider that the faster the train the less it can haul. That is where the speed is expensive.[1]

In the first of the two preceding paragraphs, which follow one another in the text, Professor Adams states that in his opinion the added cost of running trains at high speed is overestimated, but in the second so far modifies his statement as to say that the cost is not overestimated if cognizance be taken of the fact that the faster the speed the fewer cars the locomotive can haul.

At a later stage in his argument he reverts to the cost of speed and makes clearer his objections to the contentions of the railway men, and sets forth his own views of the cost of speed somewhat more explicitly. He says:

It may be said also that the mail trains cost more to run than ordinary trains, both because of the amount invested in the equipment and the greater speed at which the trains go. So far as this is true it forces upon one the consideration of the propriety of making use of such expensive equipment and of demanding such high speed for all mails. I am inclined to think, however, that the expense of speed is overestimated. I have in mind there the rule that expense increases as the square of the speed, which, of course, is absurd. That is possible for coal, or, let us say, energy. The expenses which

[1] Ibid., pp. 15, 16.

would come under such a statement do not include all the expenses which must be considered. The condition of the track, however, has much more to do with expense of wear and tear than the speed at which a train is run. The claim that expense increases in direct ratio with resistance, and that resistance increases within the square of speed, will not stand investigation. The true expense of speed consists in a reduction of the load. The road loses because it cannot carry as much freight at a high speed as it can carry at a low speed. This is the ruling consideration in connection with speed. In the above calculation I assume ten cars in a train, which is not too many for a high rate of speed after a good engine. Should speed be reduced, the number of cars might, I imagine, be increased. Permit me to repeat, however, that upon these questions of details I do not profess to be an expert. I am willing my line of argument should be submitted to criticism, but I should like more light upon certain questions of detailed operation before standing to my figures.[1]

Exactly what it costs to increase materially the speed of trains cannot be ascertained. But it is clear that the expense in one form and another increases rapidly with an augmentation of speed. Professor Adams, in a general way, is aware that high speed means short trains, but he has no accurate conception of how rapidly the size of the train must be reduced to permit of a material increase of speed. An acceleration of speed from thirty-five to fifty miles per hour can only be accomplished by removing at least one-half the cars from the train. In other words, not less than two trains would have to be run where but one was run before. On lines over which

[1] Ibid., pp. 24, 25.

a first-class locomotive can haul twelve cars at an average speed of thirty-five miles, no more than five cars can be hauled at an average speed of fifty miles per hour.

Professor Adams, in one of his calculations, assumes that ten cars in a train are not too many for a high rate of speed after a good engine.[1] As he does not indicate what he regards a high rate of speed, it is impossible to judge of the correctness of his statement. But later in his argument, in reply to a question from Mr. Loud as to what rate of speed he assumed could be maintained with ten heavy cars, Professor Adams replied: "Well, I went to Denver last summer with ten Pullmans, and we frequently attained the rate of sixty and sometimes seventy miles an hour."[2]

This single experience hardly seems a sufficient basis upon which to ground an argument. In all likelihood the rate of speed was estimated, but even if it were accurately ascertained it would make no difference, for trains that are scheduled to cover but thirty miles an hour frequently run at the speed cited by Professor Adams over favorable stretches of track; and, besides, what can be done by a locomotive over short stretches of good track affords practically no criterion of what the same locomotive can be relied upon to do day in and day out, up hill as well as down, against the wind as well as with it, over slippery as well as over dry track, and over track abounding in sharp curves, as well as that which runs straight

[1] Ibid., p. 25.
[2] Ibid., pp. 43, 44.

away. And then, too, it must be remembered that the average speed while under way is materially higher than the average speed maintained between termini, for in ascertaining the latter the time lost for stops must be added.

To learn how nearly Professor Adams's assumption that a good engine can maintain a high rate of speed with ten cars squares with actual practice, I wrote to the officials of several railways that run fast mail trains for the number of cars hauled by their locomotives. The replies received go far in substantiating the statement that it is impossible to maintain a speed between termini of fifty miles an hour with more than five cars. General Manager W. A. Gardner of the North-Western and General Manager W. C. Brown of the Burlington both stated that it would be impossible for their mail trains to make the speed they now maintain, which is about forty-eight miles per hour, with more than five cars, and President A. J. Earling of the St. Paul said their fast mail train to Minneapolis could not make the time it is now scheduled to make, which is somewhat slower than the trains of the North-Western and Burlington, with more than six cars.

In discussing the cost of great speed, Professor Adams admitted that there were other elements to be considered beside the abridgment of the train, but he did not stop to weigh them. His treatment of the cost of speed leaves the impression that high speed does not involve an extra outlay of any moment.[1] There are a

[1] In addition to the pages already cited, see pages 43, 44.

number of items of cost that are entirely ignored by him, and among them are a few of considerable consequence. The most important of the items will be briefly presented. In doing this I shall draw freely from a paper read at a recent session of the Western Railway Club by Mr. F. A. Delano, entitled, "What Does It Cost to Run Trains at High Speed?"[1]

The increased consumption of fuel incident to greater speed by the locomotive, primarily concerned, Professor Adams perhaps sufficiently allows for. It may, however, be added that the coal used is selected coal, broken in advance, so that the fireman will not be obliged to break it, and may thus devote himself to the more important work of keeping his fire, and that the consumption of coal begins long before the locomotive is coupled to the train, for the locomotives drawing the fast trains must be "warmed up" for their race by being run back and forth in the yard for an hour or more before the serious work begins. There is also a large increase in the oil used on the fast runs. On particularly fast trains from two to three times as much oil is consumed as on the ordinary trains. There is no stinting, because no chances can be taken of hot bearings.

Extra-fast trains require a higher grade of machinery, material, and service than ordinary trains do. In extra-fast service no expense, it may almost be said, is spared

[1] Official Proceedings of Western Railway Club, vol. xii, No. 5, p. 201. After this chapter was originally printed Mr. Delano was called before the Postal Commission. His valuable testimony on the additional cost of extra speed may be found in Testimony, Part II, p. 503, et seq.

to prevent breakdowns, detentions, or failures of any kind; even the waste which is put in the oil boxes of cars and engines is of a special quality; the journals are burnished; the brasses are especially scraped or machined; and, as has just been stated, the coal used is selected and broken in advance. The locomotive itself is looked over by the best mechanics, and the master mechanic gives a large share of his thought and attention to the condition of the locomotives and cars in such trains. In the superintendent's and train dispatcher's office especial attention is given to avoid delays; in the maintenance of way department, from the roadmaster to the section man, the constant thought is to make the track safe for this special service.

The added wear and tear of rolling stock and track is considerable. It has often been noted that on a new piece of track a heavy locomotive hauling a high-speed train will often do an immense amount of damage in throwing out of line and surface a track which has stood up satisfactorily under a number of heavy but slow-moving trains. With old track in good condition, the difference in the effect is of course much less noticeable. The best evidence of the added cost of wear and tear of machinery is shown in the records of locomotive failures. It has been found that the failures of locomotives in passenger service are in much greater ratio to passenger train mileage than the failures in freight service, and this in spite of the fact that the best motive power is used in passenger service. A still further analysis of these failures shows that an overwhelmingly large proportion of the failures

in passenger train service occurs in special fast passenger and mail trains, the failures in light and slow passenger service being almost *nil.*

In spite of the care that is taken in running trains at high speed the risk involved is too great to be ignored. What this risk is worth in terms of insurance would take an actuary with statistics covering years to determine. Vigilance has reduced accidents in high-speed service to a comparatively low figure, but when they do occur the loss of life and property is almost invariably enormous.

There would be small necessity for the expensive block and signal systems were it not for the high-speed trains. Divisions of railroads on which such trains are not run are successfully operated without them. The expense of all such safety appliances does not enter so much in the first cost as in the cost of maintenance, renewal, and the wages of employes attending them.

While it is a more difficult factor to determine, the delay of other trains caused by the high-speed trains is a matter of great moment, and perhaps the largest item of cost incident to great speed. A fast train following a slow one soon overtakes it. The slow train must take a side track, for the fast trains always have the right of way. To make certain that the track will be clear, for no chances can be taken of delaying the fast trains, the rules usually require that freight trains must be off the main line twenty minutes and passenger trains ten minutes before the extra-fast train is due. The extra-fast trains thus have exclusive possession of the track for an unusual length of time,

thereby greatly retarding the movement of all other trains. They are also responsible for a large consumption of coal that is never charged to them. If the coal burned by the trains that are side-tracked to allow the fast trains to pass were charged to the latter their coal consumption would be very largely increased. And coal is only one of several items of expense on freight and other slow trains which are materially increased by the running of extra-fast trains.

It has been pointed out many times by practical railroad men that the way to do a maximum amount of business over a railroad is to have the speed of all trains as nearly uniform as possible. The most familiar examples of the great carrying capacity of railroads moving trains at a relatively slow but uniform speed, and consequently at frequent intervals, are the street-car lines and elevated railroads. When the statistics of business done by these railways on holidays are compared with those of the steam roads the difference is astonishing. The steam road does not begin to do the business of the street-car line and elevated railway. The few extra-fast trains practically monopolize the tracks.

Of the many remaining comparisons and statements of facts made by Professor Adams that are open to criticism I shall examine but one. Most of the railway men who appeared before the Postal Commission attempted to justify the compensation they were receiving by showing that ton for ton they obtained no more for the transportation of mail than they did for the transportation of

express matter. Professor Adams following the same line of reasoning arrives at the conclusion that in certain cases, at least, the railways receive more from express than from mail. He says:

> Any comparison of railway mail pay with what railways receive from express companies . . . . will show a relative overpayment for a long route and a relative underpayment for a short route. . . . .
>
> I might illustrate that point by giving a comparison between the rate from New York to Buffalo, which I call a long route, and the rate from Philadelphia to New York, which I call a short route. On the short, for example, from Philadelphia to New York, a ton of mail would be carried for $6.67, a ton of express for $8.70. . . . . I have assumed the 100-pound rate from New York to Philadelphia is 75 cents, which is not in harmony with the testimony before this Commission, but that is what the express company gave me. On the New York to Buffalo route, however, the charge for a ton of mail is $31.73. I think the express charge is $25, or rather $12.50, which is one half; only half of the public rate should be compared with the mail. Of those two roads, one being 439 miles long and the other 90 miles, in the one case an overpayment is shown and the other case an underpayment.[1]

On the shorter of the two routes selected by Professor Adams the earnings of the railway company from mail are less than those from express. This is true notwithstanding Professor Adams compared the average rate received for hauling the mail with one of the lowest, if not the lowest, rate received for hauling express. Had the express rate been anywhere near representative the comparison would have shown that railway earnings from

[1] Testimony, Part II, p. 13.

mail were much lower than those from express matter. In just what particulars the comparison was unfair will appear in the discussion which follows of his comparison of earnings on the long route.

"On the New York and Buffalo route," said Professor Adams, "the charge for a ton of mail is $31.73. I think the express charge is $25, or rather $12.50, ... only half of the public rate should be compared with the mail." Why but one-half of the rate paid by the public should be taken he later explains as follows:

> The contract of the New York Central Company with the express company operating over its line is to the effect that the railway receives 40 per cent of express earnings as compensation for transportation. It is this percentage, therefore, rather than what the express company charges the shipper, which should be brought into comparison with what the Government pays the railway for transporting the mail. Railway officials, however, urge that their contract with express companies is more favorable to them than the agreement with the Post-Office Department in three particulars: (1) Because the express companies pay their portion of salaries to railway employes in case railway employes handle express; (2) because express companies perform "gratuitous" service for railway companies in handling railway packages; and (3) because the facilities provided for mail traffic are more exacting and expensive than for express traffic. In the comparison which follows I have raised the 40 per cent of gross express earnings which railways receive for transportation of express matter to 50 per cent—that is, one-half the express rate goes for transportation service. It seems to me that the most exacting railroad official ought to regard this as an ample allowance.[1]

[1] Ibid., p. 22.

An allowance of 10 per cent for differences in service may seem very liberal to Professor Adams, and it probably is a generous allowance for the items he mentions. There are several differences, however, which he does not enumerate, and among them is the most important one of all. The railways get paid for all the express matter they carry, but they do not get paid for all the mail they haul. As was explained in detail in the first chapter, the mail tonnage hauled by the railroads is not ascertained by actually weighing the mails for the entire period they are carried. The law provides that the weight of the mail on which the compensation of the railways is calculated shall be ascertained not less often than once in four years by actually weighing the mails for a period of not less than thirty successive working days. In practice the weighing is not done oftener than the law commands, or once in four years. The weight is ascertained several months before the beginning of the four-year period to which it applies, and no corrections made. Now, as is well known, the volume of mail, in harmony with all other business and the growth of population, increases by leaps and bounds. As a result, the mail carried at the end of the four-year period greatly exceeds that conveyed at the beginning of the period. From a careful examination of the quadrennial weighings I find that the railways year in and year out carry on the average about 8 or 9 per cent. more mail than they get paid for hauling. This being true, I should not be surprised if the railways did not regard Professor Adams's

addition of 10 per cent as ample to cover all the differences between mail and express service. Then, too, on some systems the railway's percentage of the gross earnings of the express company greatly exceeds 40 per cent. The Santa Fé, for example, receives 55 per cent, so it would not be at all astonishing if the railway men did not regard Professor Adams's percentage a liberal one.

Professor Adams's comparison is unfair for another reason. The 100-pound package which he assumes as the typical one is rather the exceptional one. The officials of the express companies differ slightly in their estimates of the average weight of the packages they handle, but none that I know of regards the average weight as exceeding seven pounds. What different results can be obtained by comparing railway earnings from express packages of different weights with average earnings from mail may be seen from the subjoined table:

RAILWAY EARNINGS FROM MAIL AND EXPRESS BETWEEN NEW YORK AND BUFFALO.[1]

50 per cent of earnings from 2,000 one-pound packages or 1 ton of express	$250.00
50 per cent of earnings from 285.7 seven-pound packages or 1 ton of express	57.14
50 per cent of earnings from 20 one-hundred-pound packages or 1 ton of express	12.50
Average earnings from 1 ton of mail	31.73

[1] Earnings from the two forms of traffic on the New York Central have been compared because the mail earnings per unit of weight are lower on this route than on any other between New York

It is not surprising, in view of the results shown by this table, that Mr. Loud should have exclaimed of the comparison on learning from Professor Adams that he had used one-half of the 100-pound rate on express: "Then it is comparatively valueless as a comparison? You did not enter into the small-parcel business?"[1] [The punctuation as given is manifestly incorrect]. And led him later, in referring to this same comparison, to say:

> Is it not possible that there was a most important factor left out in that comparison which might lead one to determine the question from a wrong standpoint? That is, you could not have contemplated the multitude of very small packages, money packages.[2]

What has been said in condemnation of Professor Adams's comparison is not affected by his contention that the 100-pound express package is most like the post-office business so far as transportation is concerned.[3] First, because mail pouches do not average anywhere near 100 pounds in weight, and for the second and decisive reason that the average weight of the mail pouches is a matter of little if any moment, because once inside the car the contents of the pouch are removed and broken up for separation. That a

City and Buffalo. The earnings as given above are the earnings from express matter that pays the single "merchandise" rate. The classification of articles by express companies will be explained a little later.

[1] Testimony, Part II, p. 23.

[2] Ibid., p. 39.

[3] Ibid.

given weight of mail requires at least as much car space as a like amount of express matter is so well established that it would be a work of supererogation to dwell upon it further.

Professor Adams's comparison of railway earnings from mail and express is unsatisfactory for still another reason. The 100-pound rate which he assumes is paid by all express matter is simply the basing, or what is known by the express companies as the "merchandise" rate. The express companies classify commodities very much as the railways do, and therefore a comparison of express earnings from commodities carried at the basing or single "merchandise" rate with average earnings from mail would not be fair. To make the point clearer, an example will be introduced. Suppose I wish to send a hunting outfit from Chicago to Kansas City. I would turn to Kansas City in a tariff book giving the rates from Chicago, and would discover that the basing or "merchandise" rate is two dollars. Then I would turn to firearms, and would discover that guns, if "trussed or boxed or taken apart and packed in sole leather or canvas cases," would pay the single "merchandise" rate, but to find what the actual charge would be I should have to turn to the table giving the "graduated charges for packages weighing less than 100 pounds." I would there learn that as my gun and case weigh ten pounds, the charge on my gun would be sixty cents, or 30 per cent. of the charge for 100 pounds. If my gun were not packed,

as above stated, I should have to pay three times the "merchandise" rate. On my dog, "if securely chained," I would have to pay double the "merchandise" rate, and I would have to pay for 100 pounds, even though the dog weighed less. On my canoe I would have to pay four times the "merchandise" rate. These examples should make it clear that a comparison of railway earnings from 100-pound packages of express matter at the basing rate are not comparable with average earnings from mail.[1]

From what has been said in the preceding pages, it must be apparent that no unusual weight attaches to Professor Adams's utterances. This is disappointing, in view of the opportunities he has had for studying transportation questions. In the compilation of a table showing the average rate per ton per mile received by all the railways for carrying mail for more than a quarter of a century he, however, rendered a service, for the task was too much for any one to undertake without the aid of a large corps of assistants. I had found it a a work of no small magnitude to obtain the data for a single system.

[1] For further discussion of some of the points I have raised, confer the exceedingly valuable testimony of Mr. Henry S. Julier. General Manager of the American Express Company. This testimony was taken after this chapter was originally printed, it can be found in Testimony, Part II, pp. 515–528.

A REVIEW OF "A GENERAL FREIGHT AND PASSENGER POST"

A REVIEW OF "A GENERAL FREIGHT AND PASSENGER POST."[1]

A General Freight and Passenger Post is one of the most unique of the many nostrums recently thrust upon the public. The reader is often at a loss to know whether to take the work seriously, for the contradictions are so palpable, many of the statements so grossly inaccurate, and the reasoning often so specious that he is forced to believe that a person having the dialectic skill, insight, and knowledge of facts possessed by its author must have been aware of the weakness of its logic and the inaccuracy of its data.

The substance of *A General Freight and Passenger Post* can be given in a few words. The main contentions of the book are: (1) That railroad rates should be based solely upon the cost of service; and (2) that the postal principle, which disregards distance in fixing charges, should be extended to freight and passengers. "Railway rates should be determined by the cost and not by the value of the service rendered,"[2] says Mr. Cowles in his fourth fundamental principle, and in many other places.[3] In his fifth fundamental principle he de-

[1] Reprinted from The Journal of Political Economy, June number, 1899.

[2] P. vi.

[3] Pp. x, 143, 207, etc.

clares: "The whole business of public transportation should be pooled under the control of the post-office, and the rate charged for the shortest distance for any particular service (the cost of service rate) should be adopted as the uniform standard rate for that class of service *for all distances* within the limits of the postal system."[1] "This," says Mr. Cowles, in stating the scope of his work, "is simply the 'Penny Post' scheme of Sir Rowland Hill, extended to cover the general business of transportation; and it presents, I believe, a practical solution of the transportation problem."[2]

If it be contended that rates should be determined by the cost of service, and at the same time it be asserted that the postal principle should be extended to freight and passengers; or in other words that distance should be disregarded in fixing railroad charges, it must follow that distance is not a varying element in the cost of service. It must cost no more to haul a car 5,000 miles than to haul it five miles, otherwise there is a conflict of fundamental principles. Mr. Cowles seems to understand this, and sees the necessity of showing that distance is not a factor in the cost of service; for quoting from Wellington he says "the effect of distance on operating expenses would be the only one which there would be need to consider."[3] At this point a demonstration of his novel proposition would naturally follow. In his proof he adopts his favorite method of argument—that of reasoning by authority. "The rail-

[1] P. vi. [2] P. vi. [3] P. vii.

ways serving New York City have had a uniform rate on milk for the last forty years. In 1887 . . . this grouped rate covered a zone of 220 miles. . . . Eight years later this zone of uniform milk rate covered distances up to 330 miles, and Commissioner George R. Blanchard, of the Joint-Traffic Association, testified before the Interstate Commerce Commission in December, 1895, that there was no reason why it should not be extended to a thousand miles.

But Messrs. Rogers, Locke & Milburn, counsel of the Delaware & Lackawanna and Western Railroad go even further than Mr. Blanchard [continues Mr. Cowles], for they say: 'The distance (within which this rate should be uniform) need only be limited by the length of time required to make it with the train and meet the wants of the New York market, with milk not affected by its transportation.'

In other words, if milk can be brought from San Francisco to New York in good condition, then the milk rate should be the same for all distances between San Francisco and New York, and for this reason, '*because of the fact that the expense incident to the mere length of haul is so small in comparison with the other necessary charges when taken in connection with the special service.*'"[1]

Later on he says: "The grand principles on which the postal systems of the world are based are as follows: *First.* When once a postal system is established the machinery must run, and it makes no practical differ-

[1] Pp. viii and ix.

ence in the cost of the business whether a letter or a newspaper, or a parcel is carried one mile or a thousand. Once the mail has started on its trip, it is impossible to figure the difference in cost, whether a piece of postal matter is left at the first office at which the mail stops, or goes to the farthest office in the system. At every office a part of the mail will be left and new matter taken on; one piece in a hundred perhaps will go the whole route, and there will always be room for it. . . . Distance, in short, costs practically nothing in the business of the post-office, and therefore postal rates should be the same for all distances."[1] After stating the other two fundamental principles he declares: "The experience of more than half a century has triumphantly demonstrated the truth of these propositions as applied to postal freight, *and what is true of the postal business is equally true of ordinary railway traffic.*"[2]

The grand principle quoted is a very curious piece of reasoning. Mr. Cowles states that "when once a postal system is established, the machinery must run, and it makes no practical difference in the cost of the business, whether a letter . . . is carried one mile or a thousand." At this point several pertinent questions may be asked. Does it not cost more to establish a postal system (including the railroads) over a vast extent of territory than over a contracted one, the topography

[1] P. 21.

[2] P. 24. The italics are mine.

being the same? To assume the system as already established begs the question. And does it not cost more to operate the machinery (including the railroads) over the larger territory? To say that the machinery must run, once established, does not make it possible to run railroad trains 1,000 miles as cheaply as they can be run 100 miles. If a train were going to run anyway, a letter probably could be carried a thousand miles as cheaply as one, but that is not the point at issue, which is: can a train be run a thousand miles as cheaply as one? Mr. Cowles also says: "At every office a part of the mail will be left and new matter taken on; one piece in a hundred perhaps will go the whole route, and there will always be room for it." There must be a fallacy lurking in this statement, for we all know that a point was reached when the camel's back could not sustain another straw. If this reasoning be sound it is difficult to understand why as the mail on a route increases in volume, pouches that once sufficed must give way to to an apartment, an apartment to a whole car, and a car in turn to a train. Perhaps all Mr. Cowles wished to state was that sufficient space would be provided, which is, however, a very different thing from stating that any given space will suffice for any quantity of mail. As business increases there must come a time when an apartment will not afford sufficient space to accommodate the mail, and a whole car must be devoted to mail, and with a further increase of matter another car must be added to the train.

Distance is disregarded in fixing postal charges, not because it is a constant element in the cost of service, but largely, if not entirely, for the sake of convenience, because it is impossible to determine the cost of service, and for the reason that the sums involved are so small that they do not permit further division. It has often been contended in the case of second, third, and fourth class matter, where parcels often attain considerable weight, that rates should vary with distance.

On page 73 Mr. Cowles declares that, "Not one single item of railway expenditure, large or small, not even fuel or wear and tear of wheels, varies in direct ratio to distance, or anything like direct ratio, and more than one-half of them are not a whit affected thereby," and on page 74 he states that, "Even the cost of the road itself is not proportioned to distance." All these contentions may be freely granted, although they are not true, and yet it does not follow that distance is not an important factor in the cost of service.

The inconsistency of the author is brought out in strong relief by the schedule of passenger rates. It will be remembered that he contends that railway charges should be based upon the cost of service. Let us see how consistently he applies his principle. If he had his way the passenger post would include a local, express, and fast post.

"The Local Post includes railway trains stopping at all stations, and trains stopping within average distances of fifteen miles.

The Express Post includes trains scheduled to stop within average distances of fifteen to forty miles, and to run at a speed of not less than thirty miles an hour.

The Fast Post includes trains stopping for passengers within average distances of not less than forty miles, and scheduled to run at a speed of not less than forty miles an hour."

Railway passenger cars are classified as ordinary and as palace cars, and the fares are as follows:[1]

By Local Post, ordinary cars	$0.05 per trip.
By Local Post, palace cars	.25 per trip.
By Express Post, ordinary cars	.25 per trip.
By Express Post, palace cars	1.00 per trip.
By Fast Post, ordinary cars	1.00 per trip.
By Fast Post, palace cars	5.00 per trip.

From this schedule it appears that the charge for any trip by the Fast Post in a palace car would be just one hundred times as much as for any trip by Local Post in an ordinary car, and if a sleeper were used the former charge would be one hundred and twenty times the latter. It is difficult to understand these startling variations on the principles laid down and explained by the author. In general, persons using the Fast Post and palace cars would make longer journeys than those using the Local Post and ordinary cars, but Mr. Cowles laid it down as one of his fundamental principles that distance not only may, but should be, ignored as an element of the cost of service. The speed of the Fast Post would

[1] Pp. 195, 196.

probably be double that of the Local Post, but Mr. Cowles is also precluded from introducing greater speed as an added element of cost, for he says, "High speed, up to the capacity of a locomotive for hauling its load, is far more profitable than low speed, for the higher the speed of the train, the greater the possible use of the whole equipment."[1] He goes even further than this. On the basis of his own reasoning the train making frequent stops is the more expensive to operate, and fares on this train should be the higher if fixed on the basis of the cost of service, for he says: "The mere stopping and starting of a train running thirty miles an hour wastes power enough to haul it two miles, and the cost of the stop of an average train is estimated at about forty cents."[2] On the basis of cost the passenger riding in a palace car should undoubtedly pay much more than the person traveling in an ordinary car, for the former's surroundings are much more comfortable and luxurious, and the passenger in the palace car probably occupies two or three times as much space as the passenger in the ordinary car. But after liberal allowance has been made for all the differences in service, which Mr. Cowles considers real, it is impossible to understand how the cost can be one hundred times greater in one case than in the other.

One point yet remains to be considered, namely, the reliability of the data introduced by Mr. Cowles. In

[1] P. 82; see also pp. 83 and 88.
[2] P. 74.

attempting to show that the railways receive excessive pay for carrying the mail he says Postmaster-General Wanamaker found that "nearly 60 per cent of our mail bags travel within zones of 350 miles."[1] Mr. Wanamaker made no test that I have been able to discover to find the average distance mail bags travel. He did, however, attempt to ascertain the average distance each piece of mail matter is carried. From the results he gives it may be stated that approximately 60 per cent of the pieces travel within zones of 500[2] miles—not 350 miles, as given by Mr. Cowles. He also states that "the railroad tax for the haul of United States mail bags, for average trips of less than 450 miles, is eight cents a pound."[3] No one knows the number of pounds of mail transported by the railroads or the average distance each pound is carried. Mr. Cowles also states that, "The deficits in the business of the post-office in recent years are easily accounted for by the burdensome taxes levied by our railway kings. These taxes remain, in most cases, at the same rate to-day as in 1878."[4] If this statement read—These taxes remain, in a few cases, at the same rate to-day as in 1878, it would very much more nearly conform to the facts. The rate of pay fixed by law decreases very rapidly with an increase of weight, as will be seen by the subjoined table:

[1] P. 240.

[2] Report of the Postmaster-General, 1889, pp. 91-93. This test was unsatisfactory for reasons explained on page 78 et seq.

[3] P. 180.

[4] P. 17.

RATES PAID FOR TRANSPORTATION OF MAIL ON BASIS OF WEIGHT.[1]

Average Daily Weight of Mail over Whole Route.	Rate per Ton per Mile.
200 pounds	$1.17
500 "	.70
1,000 "	.468
2,000 "	.351
4,000 "	.214
5,000 "	.187
20,000 "	.090
50,000 "	.070
100,000 "	.064
200,000 "	.061
300,000 "	.060

Consequently only on those postal routes where there has been no increase of weight can it be said that there has been no decline in the rate of pay. As the population of most parts of our country has increased rapidly since 1878, and this increase has been accompanied by a largely increased weight of mail, it is perfectly safe to say that in general there has been a large decline in the rate of pay because of the sliding scale of pay fixed by law, although the law itself has not been altered since 1878. But one more statement will be introduced to show the inaccuracies that abound in this work. "The post-office of to-day," declares Mr. Cowles, "pays 50 per cent. more for the transportation of a ton of mail bags from New York to Buffalo by railway than it used to cost to send ordinary freight the same distance by

[1] Senate Report No. 991, p. 124, 55th Congress, 2d sees.

boat and by wagon, in the days before the opening of the Erie canal. . . . . the railways tax the Government 8 cents a pound, $8 a hundred, $160 a ton, for the transportation of its mail bags for an average haul not over 442 miles."[1] And later Mr. Cowles says: "Taking, then, 442 miles, about the distance from New York to Buffalo, as the average haul of a mail bag . . . . we find that the railroads tax the Government $160 a ton for a haul that, in the days before the building of the Erie canal, cost private individuals, by ox team and sailing vessel, but $100. . . . ."[2] The great bulk of the mail carried between New York and Buffalo is hauled by the New York Central and Hudson River Railroad. The compensation received by this company per ton for transporting the mail over this route since June 30, 1897, the date of the last readjustment, has been somewhat less than one-fifth of the sum stated by Mr. Cowles, or $31.67.[3] It is difficult to excuse this error, for the facts can be readily obtained from the reports of the postmasters-general.

These are only a few of the gross inaccuracies that abound in the book, but they will probably suffice to show that the facts given can never be accepted without verification. This is rendered difficult because the author very rarely cites his sources except in a very general way.

[1] P. 7. [2] P. 241.

[3] Report of the Postmaster-General, 1897, p. 407. This sum includes pay for the railway post-offices as well as that made on the basis of weight carried.

A REVIEW OF "THE POSTAL DEFICIT"

A REVIEW OF "THE POSTAL DEFICIT"[1]

Much of the valuable matter contained in the testimony recently submitted to Congress by the Joint Congressional Commission on Postal Affairs is compressed into this little volume. The Commission during the three years of its very active existence obtained a vast amount of information concerning the recurring deficits of the Post-Office Department. As would be expected, however, the wheat gathered was mixed with a great deal of chaff. To all but patient students with ample time the valuable matter collected might be lost but for the diligent winnowing of Professor Newcomb.

As might be inferred from what has been said, no new light has here been shed upon the subjects investigated by the Commission. It is fair to add that this is acknowledged by the author. In referring to his chief source of information, he says: "The Commission has collected and published an exceedingly valuable mass of testimony. This testimony and the data collected by the agents especially employed to investigate different phases of the question submitted to the Commission contain material for a most accurate and complete description of postal activities and methods. This

[1] Reprinted from the Journal of Political Economy, March number, 1901.

information has been liberally drawn upon in the preparation of the present work." [1]

That Professor Newcomb has not cited more fully and definitely is cause for regret. A work of compilation loses much of its value through omissions of this character. As there are no page references to the testimony of the Commission, and no references at all to some of the other sources drawn upon, the investigator will not obtain much assistance from "*The Postal Deficit*" should he wish to pursue his inquiries beyond the contents of this meager volume.

Writing as he does after most of the field has been thoroughly gone over, it is disappointing to find Professor Newcomb accepting unquestioned some statements which should at once be challenged by the trained statistician and economist. For lack of space, only one or two of these can be introduced. Over and over again it has been stated that if the postal service were not given to remote and sparsely settled portions of the country, there would be no deficit in the Post-Office Department. In other words, the operations of the Department are extremely profitable in the large cities and on the heavy railway mail routes. As evidence of this, the enormous postal receipts in the large cities and the low rate per ton per mile on the heavy postal routes are cited. Says Professor Newcomb: "The citizens of New York, whose mail traffic is immensely profitable, have never protested, because the revenues to which

[1] Pages 91, 92.

they contribute so generously are diverted to the support of the extremely costly services that are rendered in Alaska and in the panhandle of Texas. The average cost of sending each letter of the letters composing the first lot of mail sent to Circle City, Alaska, is reported as $450, in return for which the post-office received only the price of a two-cent stamp, the same amount that carries a letter from the Battery to Harlem, in New York City."[1] And on a later page he says: "If it is proper, as is admitted without perceptible objection, to tax heavily the mail of 90 per cent. of the population in order that the facilities supplied to the remainder shall be greatly in excess of their ability or willingness to pay, there would appear to be little harm in imposing a small general tax in order to offset a slight difference between receipts and expenditures"[2] in the Post-Office Department.

There are here at least two fundamental misconceptions. These will be pointed out only in a rough way. Postal taxes, if this term may be used, are not really paid by the persons who purchase stamps any more than tariff duties are really paid by the importers. In either case the money, nine times out of ten, is merely advanced. The publishers and jobbers of the large cities expect to recoup themselves. The consumer pays the tax, just as he generally does in the case of the duty on imported goods. If it were not for the people who live outside of the thickly inhabited portion of the country

[1] Pages 9, 10. [2] Page 11.

the mail in the centers of population would amount to but a small fraction of its present volume.

Equally significant is Professor Newcomb's second misconception. In both the quotations given above the idea is conveyed that a sharp geographical division of the country and people is possible. In the first quotation he says: "The citizens of New York . . . have never protested because the revenues to which they contribute so generously are diverted to the support of the extremely costly services that are rendered in Alaska and in the panhandle of Texas." The people of New York have as much need of communication with those of the remote portions of the country as the latter have with the former. Neither community can live by itself. The very example selected by the author disproves his contention. He says: "The cost of *sending* each of the letters composing the first lot of mail sent to Circle City, Alaska, is reported as $450." The proposition that the business of the Post-Office Department could be done at less cost were all the people settled on a limited amount of territory is one that probably no one would question.

STATISTICAL APPENDIX

STATISTICAL APPENDIX

TABLE I.

WEIGHT BY CLASSES OF MAIL ORIGINATING IN THE UNITED STATES.[1]

Class.	Weight for 35 Days.	Per Cent of Total Weight.
	Pounds.	
First class	9,098,882	6.06
Second class	37,820,857	25.19
Second class, free	3,140,464	2.09
Third and fourth class	13,987,967	9.32
Government, free	9,218,203	6.14
Equipment	76,866,032	51.20
Total	150,132,405	100.00

[1] This table includes mail for local delivery and all mail dispatched from all post-offices of the United States by steam railroads, electric cars, steamboats, and on star routes or otherwise. It does not include foreign mail, for this of course does not originate in the United States. The data from which this table was compiled may be found in the Report of the Postmaster-General, 1900, p. 258.

TABLE II.

WEIGHT BY CLASSES OF MAIL SENT TO RAILROADS.[1]

Class.	Weight for 35 Days.	Per Cent of Total Weight.
	Pounds.	
First class	6,965,248	5.39
Second class	36,606,909	28.34
Second class, free	1,920,925	1.49
Third and fourth class	12,066,660	9.34
Foreign	[2] 800,549	.62
Government, free	8,291,332	6.42
Equipment	62,526,682	48.40
Total	129,178,305	100.00

[1] The data from which this table was compiled may be found in the Report of the Postmaster-General, 1900, pp. 259-261.

[2] All foreign matter (Cuban, Mexican, and Canadian) received direct by border post-offices and shipped to railroads is included under proper classes, and the weight of this matter is not separately reported and cannot be ascertained. The matter received by railway post-office trains direct from Cuban, Mexican, and Canadian connections was 131,350 pounds. The matter received at New York from steamships and transferred direct to railroads, and reported in column of "Foreign," was 291,473 pounds.

TABLE III.

WEIGHT OF FREE AND PAID MAIL MATTER ORIGINATING IN THE UNITED STATES.[1]

	Weight for the 35 Days Beginning October 3 and Ending November 6, 1899.	Estimated Weight for 365 Days on the Basis of the Weight Ascertained for 35 Days.	Per Cent of Total Weight.
	Pounds.	Pounds.	
Mail from which revenue was derived	60,907,706	635,180,362	40.57
Mail from which no revenue was derived	89,224,699	930,486,146	59.43
Total	150,132,405	1,565,666,508	100.00

[1] The data from which this table was prepared may be found in the Report of the Postmaster-General, 1900, p. 258. For details by classes, see Table I.

TABLE IV.

WEIGHT OF FREE AND PAID MAIL SENT TO RAILROADS.[1]

	Weight for 35 Days Beginning October 3 and Ending November 6, 1899.	Estimated Weight for 365 Days on the Basis of the Weight Ascertained for 35 Days.	Per Cent of Total Weight.
	Pounds.	Pounds.	
Mail from which revenue was derived	56,439,366	588,581,959	43.69
Mail from which no revenue was derived	72,738,939	758,563,221	56.31
Total	129,178,305	1,347,145,180	100.00

[1] The data from which this table was prepared may be found in the Report of the Postmaster-General, 1900, p. 261. For details by classes, see Table II.

TABLE V.

ESTIMATE OF THE TOTAL AMOUNT OF MAIL ORIGINATING IN THE UNITED STATES IN A YEAR, AND THE PORTION OF IT SENT TO RAILROADS, TOGETHER WITH A STATEMENT OF THE FOREIGN MAIL SENT TO RAILROADS.[1]

Class.	Weight for 365 Days.	Amount Sent to Railroads.	Difference, Local Mail.	Per Cent to Railroads.
	Pounds.	Pounds.	Pounds.	
First class	94,888,341	72,637,586	22,250,755	76.55
Second class	394,417,505	381,757,766	12,659,739	96.79
Second class, free	32,750,550	20,032,503	12,718,047	61.16
Third and fourth class	145,874,518	125,838,025	20,036,493	86.26
Government, free	96,132,692	86,466,748	9,665,944	89.94
Equipment	801,602,902	652,063,970	149,538,932	81.34
Foreign		8,348,582		100.00
Total	1,565,666,508	1,347,145,180	226,869,910	86.04

[1] The data from which this table was prepared may be found in the Report of the Postmaster-General, 1900, p. 258. The estimates are based upon the results obtained from the actual weighing of thirty-five days, extending from October 3 to November 6, 1899, already presented in Tables I and II.

TABLE VI.

MAXIMUM RATES ON BASIS OF WEIGHT FOR TRANSPORTATION OF MAIL BY RAILROADS.[1]

Average Weight of Mails per Day Carried over Whole Length of Route.	Pay per Mile per Annum.			
	Rates Allowable under Act of March 3, 1873.	Rates Allowable under Acts of July 12, 1876, and June 17, 1878.	Rates Allowable to Land-Grant Railroads, being 80 Per Cent of Allowance to Other Railroads, under Act of July 12, 1876.	Intermediate Weight Warranting Allowance of $1 per Mile under the Custom of the Department, Subject to Acts of July 12, 1876, and June 17, 1878.
				Pounds.
200 pounds	$50.00	$42.75	$34.20	------
200 to 500 pounds	------	------	------	12
500 pounds	75.00	64.12	51.30	------
500 to 1,000 pounds	------	------	------	20
1,000 pounds	100.00	85.50	68.40	------
1,000 to 1,500 pounds	------	------	------	20
1,500 pounds	125.00	106.87	85.50	------
1,500 to 2,000 pounds	------	------	------	20
2,000 pounds	150.00	128.25	102.60	------
2,000 to 3,500 pounds	------	------	------	60
3,500 pounds	175.00	149.62	119.70	------
3,500 to 5,000 pounds	------	------	------	60
5,000 pounds	200.00	171.00	136.80	------
For every additional 2,000 pounds	25.00	21.37	17.10	------
over 5,000 pounds	------	------	------	80

No allowance is made for weights not justifying the addition of $1.

[1] This table was taken from page 5 of the pamphlet of instructions issued by the Second Assistant Postmaster-General.

TABLE VII.

PAYMENTS FOR POST-OFFICE CARS.[1]

Length of Car.	Rate per Mile of Track per Annum.	Rate per Mile Run by Cars.
		Cents.
40 feet	$25.00	3.424
45 "	30.00	4.109
50 "	40.00	5.479
55 to 60 feet	50.00	6.849

[1] See 55th Cong., 2d Sess., Senate Report. No. 991, p. 124. For an explanation of this table see p. 16.

TABLE VIII.

RATES PER TON OF MAIL AND RATES PER MILE OF TRACK PER ANNUM, UNDER THE LAW OF 1873, AS AMENDED.[1]

Average Weight of Mail Carried Over Entire Route per Day.	Rate per Ton-Mile of Mail.	Pay per Mile of Route per Annum.	Average Weight of Mail Carried Over Entire Route per Day.	Rate per Ton-Mile of Mail.	Pay per Mile of Route per Annum.
Pounds.			Pounds.		
200	**$1.17123**	**$42.75**	7,500	$0.14493	$198.37
250	1.02466	46.75	8,000	.13998	204.37
300	.92694	50.75	8,500	.13562	210.37
350	.85714	54.75	9,000	.13014	213.75
400	.80479	58.75	9,500	.12675	219.75
450	.76408	62.75	10,000	.12370	225.75
500	.70274	**64.12**	11,000	.11712	235.12
550	.65878	66.12	12,000	.11284	247.12
600	.63128	69.12	13,000	.10811	256.50
650	.59958	71.12	14,000	.10509	268.50
700	.58023	74.12	15,000	.10151	277.87
750	.55616	76.12	16,000	.09927	289.87
800	.54195	79.12	17,000	.09645	299.25
850	.52297	81.12	18,000	.09475	311.25
900	.51218	84.12	19,000	.09247	320.62
950	.49315	**85.50**	20,000	.09113	332.62
1,000	.46849	**85.50**	21,000	.08924	342.00
1,100	.45081	90.50	22,000	.08817	354.00
1,200	.43607	95.50	23,000	.08657	363.37
1,300	.42360	100.50	24,000	.08570	375.37
1,400	.41292	105.50	25,000	.08433	384.75
1,500	.39041	**106.87**	30,000	.08027	439.50
1,600	.38313	111.87	35,000	.07697	491.62
1,700	.37671	116.87	40,000	.07485	546.37
1,800	.37100	121.87	45,000	.07288	598.50
1,900	.36590	126.87	50,000	.07159	653.25
2,000	.35137	**128.25**	55,000	.07027	705.37
2,100	.33725	129.25	60,000	.06942	760.12
2,200	.32690	131.25	65,000	.06847	812.25
2,300	.31745	133.25	70,000	.06787	867.00
2,400	.30651	134.25	75,000	.06715	919.12
2,500	.29863	136.25	80,000	.06670	973.87
2,600	.29136	138.25	85,000	.06614	1,026.00
2,700	.28260	139.25	90,000	.06580	1,080.75
2,800	.27642	141.25	95,000	.06534	1,132.87
2,900	.27067	143.25	100,000	.06508	1,187.62
3,000	.26347	144.25	125,000	.06372	1,453.50
3,500	.23425	**149.62**	150,000	.06290	1,722.00
4,000	.21592	157.62	175,000	.06224	1,987.87
4,500	.20167	165.62	200,000	.06182	2,256.37
5,000	.18740	**171.00**	225,000	.06142	2,522.25
5,500	.17634	177.00	250,000	.06117	2,790.75
6,000	.16712	183.00	275,000	.06090	3,056.62
6,500	.15938	189.00	300,000	.06073	3,325.12
7,000	.15059	192.37	Limit	.05856	.....

[1] The average weights and amounts of pay per mile per annum in black figures are explicitly prescribed in the laws mentioned; the others are computed from these according to the weights prescribed by the Postmaster-General as warranting the addition of $1.00 to the annual pay per mile; these weights may be found in the last column of Table VI. Amounts not warranting the addition of an entire dollar are neglected.

The laws prescribe that for each additional 2,000 pounds above 5,000 pounds there shall be paid $21.37½ per mile of route per annum.

This table may be found on p. 249, Part II, of the testimony taken by the Joint Congressional Commission on Postal Affairs.

TABLE IX. RAILWAY MAIL COMPENSATION AND RAILWAY MAIL SERVICE, 1873 TO 1898.

Year.	Annual Rate of Expenditure for Railway Service.	Per Cent Increase Over 1873.	Length of Railway Mail Routes.	Per Cent Increase Over 1873.	Annual Railway Mail Transportation.	Per Cent Increase Over 1873.	Annual Ton Mileage of Mail Carried by Rail.	Per Cent Increase Over 1873.
			Miles.		Miles.			
1873	$ 6,522,725	-------	49,997	-------	65,621,445	-------	24,687,923	-------
1874	7,573,627	16.11	54,869	9.74	72,460,545	10.42	31,911,945	29.26
1875	8,153,554	25.00	59,952	19.91	75,154,910	14.52	34,163,600	38.38
1876	8,686,358	33.17	64,748	29.50	77,741,172	18.46	36,229,459	46.74
1877	9,018,844	38.26	68,960	37.92	85,358,710	30.07	37,640,986	52.46
1878	9,210,268	41.20	71,025	42.05	92,120,395	40.38	39,755,061	61.03
1879	9,562,137	46.59	74,203	48.41	93,092,992	41.86	44,428,619	79.96
1880	9,703,141	48.75	77,292	54.59	96,497,463	47.05	47,111,138	90.82
1881	10,574,672	62.12	80,067	60.14	103,521,229	57.75	55,746,705	125.80
1882	11,293,573	73.14	81,693	63.39	113,995,318	73.71	63,211,781	156.04
1883	12,915,639	98.00	93,759	87.52	129,198,641	96.88	72,444,857	193.44
1884	14,185,720	117.48	101,926	103.86	142,541,392	117.21	80,277,597	225.16
1885	15,383,140	135.83	109,606	119.22	151,910,845	131.49	89,526,808	262.63
1886	15,888,290	143.58	110,868	121.74	165,699,389	152.50	93,635,303	290.33
1887	17,236,659	164.25	121,453	142.92	169,689,866	158.58	104,038,196	321.41
1888	18,356,233	181.41	126,644	153.30	185,485,783	182.66	112,830,405	357.02
1889	20,069,669	207.68	133,781	167.57	204,192,489	211.16	128,186,659	419.22
1890	21,258,428	225.91	134,949	169.91	215,715,680	228.72	142,024,571	475.27
1891	23,954,253	267.24	148,841	197.69	228,719,900	248.54	161,989,694	556.14
1892	25,881,003	296.78	153,998	208.01	239,731,509	265.32	179,062,188	625.30
1893	28,393,738	335.30	160,660	221.33	252,750,574	285.16	203,195,521	723.05
1894	30,114,725	361.68	162,454	224.92	264,717,595	303.40	226,021,821	815.51
1895	31,545,392	383.62	168,386	236.79	267,117,737	307.05	240,638,449	874.72
1896	31,901,124	389.07	168,488	236.99	268,806,324	309.63	246,062,726	896.69
1897	33,730,037	417.11	170,429	240.87	273,190,356	316.31	266,305,885	978.68
1898	34,273,431	425.44	170,893	241.80	281,585,612	329.10	272,714,017	1,004.64
Aggregate, 1873–1898	$465,386,380	-------	--------	-------	4,316,617,871	-------	3,036,571,914	-------

[1]This table may be found on p. 214, Part II, of the testimony taken by the Joint Congressional Commission on Postal Affairs.

TABLE X.

CLASSIFICATION OF MAIL TRAFFIC AND MAIL PAY ACCORDING TO RATES OF PAYMENT FOR THE YEAR 1898. TOTALS—UNITED STATES.[1]

Rate Per Ton Per Mile.	Number of Routes.	Per Cent of Total.	Length of Routes.	Per Cent of Total.	Ton Mileage Per Year.	Per Cent of Total.	Annual Rate of Pay for Transportation.	Per Cent of Total.	Annual Rate of Pay for Post-Office Cars.	Per Cent of Total.	Annual Rate of Expenditure for Railway Service.	Per Cent of Total.
			Miles.									
$10 and above...	12	0.50	115.57	0.07	384	0.0001	$4,940.59	0.02	.....	.....	$4,940.59	0.01
$8 to $10.....	14	.58	138.36	.08	648	.0002	5,907.16	.02	.....	.....	5,907.16	.02
$6 to $8.....	26	1.08	286.67	.17	1,819	.0007	12,255.04	.04	.....	.....	12,255.04	.04
$5 to $6.....	16	.67	155.77	.09	1,212	.0004	6,659.10	.02	.....	.....	6,659.10	.02
$4 to $5.....	39	1.62	465.24	.27	4,713	.0017	21,259.85	.07	.....	.....	21,259.85	.06
$3 to $4.....	62	2.58	806.70	.47	10,346	.0038	34,496.05	.11	.....	.....	34,496.05	.10
$2 to $3.....	136	5.67	2,294.41	1.34	41,194	.0151	97,922.14	.32	.....	.....	97,922.14	.29
$1 to $2.....	389	16.21	8,788.88	5.14	300,341	.1101	381,643.22	1.24	.....	.....	381,643.22	1.11
$0.80 to $1.....	263	10.96	8,849.79	5.18	503,609	.1847	444,603.72	1.45	.....	.....	444,603.72	1.30
$0.60 to $0.80....	329	13.71	15,837.20	9.27	1,430,500	.5245	983,137.68	3.20	.....	.....	983,137.68	2.87
$0.40 to $0.60....	423	17.62	31,546.39	18.46	5,502,770	2.0178	2,610,895.18	8.51	$2,435.50	0.07	2,613,330.68	7.62
$0.30 to $0.40....	219	9.12	22,699.60	13.28	7,718,465	2.8302	2,692,119.05	8.77	17,665.00	.49	2,709,784.05	7.91
$0.20 to $0.30....	166	6.92	23,073.51	13.50	13,789,634	5.0565	3,298,356.22	10.75	50,315.50	1.41	3,348,671.72	9.77
$0.15 to $0.20....	111	4.62	18,033.78	10.55	19,716,650	7.2298	3,154,194.69	10.28	217,631.53	6.08	3,372,026.22	9.84
$0.12 to $0.15....	80	3.33	13,861.57	8.11	26,589,470	9.7499	3,106,717.27	10.12	430,700.05	12.03	3,537,417.32	10.32
$0.10 to $0.12....	45	1.88	8,228.68	4.82	25,402,551	9.3147	2,349,876.80	7.66	463,708.18	12.95	2,813,584.98	8.21
$0.09 to $0.10....	29	1.21	5,045.02	2.95	24,708,758	9.0603	1,937,531.63	6.31	421,548.52	11.77	2,359,080.15	6.88
$0.08 to $0.09....	22	.92	7,361.25	4.31	65,927,238	24.1746	4,556,107.54	14.84	1,011,839.89	28.26	5,567,947.43	16.25
$0.07 to $0.08....	12	.50	2,625.64	1.54	76,136,305	27.9181	4,728,450.22	15.41	891,251.45	24.89	5,619,701.67	16.40
$0.06 to $0.07[2]...	4	.17	477.18	.28	4,720,902	1.7311	253,325.39	.83	73,642.50	2.05	326,967.89	.95
$0.05 to $0.06[2]...	3	.13	202.21	.12	206,508	.0757	12,094.15	.04	.....	.....	12,094.15	.03
	2,400	.....	170,893.42	.....	272,714,017	.....	$30,692,692.69	.....	$3,580,738.12	.....	$34,273,430.81	.....

Rate per ton per mile—United States—12.56+ cents.

[1]This table may be found on p. 265, Part II, of the Testimony taken by the Joint Congressional Commission on Postal Affairs.
[2]These rates are inserted to make the statement complete. With one exception they pertain to "lap service" routes.

TABLE XI.

SUMMARY SHOWING AGGREGATE POST-OFFICE EXPENDITURE AND ANALYSIS OF EXPENDITURES FOR TRANSPORTATION.[1]

[NOTE.—These figures are taken from reports of the Postmaster-General.]

Year.	Aggregate Post-Office Expenditure.	Expenditures for Transportation.						Ratio Total Expenditure for Transportation to Total Post-Office Expenditures.
		Star-Route Service.	Steamboat Service.	Railroad Service.			Total Expenditures for Transportation.	
				Transportation.	Railway Post-Office Cars.	Total.		
1870	$23,998,838	$5,049,598	$706,154	$5,128,901	.....	$5,128,901	$10,884,653	45.3
1871	24,390,104	5,027,473	776,943	5,724,979	.....	5,724,979	11,529,395	47.2
1872	26,658,192	5,289,628	779,865	6,502,771	.....	6,502,771	12,572,264	47.1
1873	29,084,946	5,578,500	799,645	7,257,196	.....	7,257,196	13,635,341	46.8
1874	32,126,415	5,073,390	839,004	9,113,190	.....	9,113,190	15,402,057	47.9
1875	33,611,309	5,452,721	684,130	9,216,518	.....	9,216,518	15,353,369	45.6
1876	32,263,488	5,051,541	606,465	9,543,134	.....	9,543,134	15,201,140	47.4
1877	33,486,322	5,663,970	666,989	9,063,936	.....	9,053,936	15,384,895	45.9
1878	34,165,084	5,714,943	752,483	9,566,595	.....	9,566,595	16,034,021	46.9
1879	33,449,899	6,401,830	754,388	9,067,590	.....	9,067,590	16,723,808	49.9
1880	36,542,804	7,321,499	887,221	9,237,945	$1,261,041	10,498,986	18,707,706	51.1
1881	39,592,566	6,957,355	753,167	10,249,261	1,364,107	11,613,368	19,323,890	48.8
1882	40,482,021	5,553,849	574,019	11,297,333	1,455,851	12,753,184	18,881,052	46.6
1883	43,282,944	4,739,478	607,621	12,288,799	1,599,001	13,887,800	19,234,899	44.4
1884	47,224,560	5,089,941	596,573	13,273,606	1,738,997	15,012,603	20,699,117	43.8
1885	50,046,235	5,414,804	563,002	14,758,495	1,869,488	16,627,983	22,605,789	45.1
1886	51,004,744	5,352,181	446,419	15,520,191	1,816,321	17,336,512	23,135,112	45.3
1887	53,006,194	5,099,583	433,189	16,174,691	1,881,581	18,056,272	23,588,994	44.5
1888	56,468,315	4,959,192	438,942	17,528,600	1,996,359	19,524,959	24,923,093	44.1
1889	62,317,119	5,228,387	446,032	19,441,096	2,198,518	21,639,613	27,314,032	43.8
1890	66,259,548	5,411,666	462,820	20,869,232	2,526,000	23,395,232	29,269,718	44.1
1891	73,059,519	5,390,266	443,854	22,398,869	2,784,845	25,183,713	31,017,833	42.4
1892	76,980,846	5,586,328	437,040	24,196,330	2,930,199	27,126,529	33,149,897	43.0
1893	81,581,681	5,758,820	433,071	25,716,606	3,193,589	28,910,195	35,102,086	43.0
1894	84,994,112	5,893,390	423,219	27,153,091	3,205,099	30,358,190	36,674,799	43.1
1895	87,179,551	5,833,516	408,319	27,961,932	3,243,411	31,205,342	37,447,177	42.9
1896	90,932,670	5,884,512	418,780	28,941,880	3,463,917	32,405,797	38,709,089	42.5
1897	94,077,242	5,363,903	426,390	30,171,543	3,704,979	33,876,521	39,666,714	42.1
1898	98,033,524	5,310,591	452,523	30,786,376	3,917,472	34,703,847	40,466,961	41.2

[1]This table may be found on p. 279 of Part II of the testimony taken by the Joint Congressional Commission on Postal Affairs.

TABLE XII.

SUMMARY SHOWING QUANTITY OF MAIL, FREIGHT AND PASSENGER TRAFFIC IN UNITED STATES.[1] [1873–1898.]

[The mileage used in the computation of this table is the mileage for which reports of revenue were obtained, and not the absolute mileage given in column 1.]

Year.	Mileage.		Traffic Mileage of Services Named.			Traffic Mileage per Mile of Line Operated—for Services Named.		
	Railroad.	Railway Mail Routes.	Passenger.	Freight.	Mail.	Passenger.	Freight.	Mail.
1873	70,278	49,997	.....	.....	24,687,923	.....	.....	494
1874	72,383	54,869	.....	.....	31,911,945	.....	.....	582
1875	74,096	59,952	.....	.....	34,163,600	.....	.....	570
1876	76,808	64,748	.....	.....	36,229,459	.....	.....	560
1877	79,089	68,960	.....	.....	37,640,985	.....	.....	546
1878	81,776	71,025	.....	.....	39,755,061	.....	.....	560
1879	86,497	74,203	.....	.....	44,428,619	.....	.....	599
1880	89,763	77,292	5,740,112,502	32,348,846,693	47,111,138	65,392	368,514	610
1881	97,868	80,067	6,493,434,755	38,108,826,793	55,746,705	74,677	437,710	696
1882	108,983	81,693	7,681,578,395	40,213,710,847	63,211,781	79,019	414,515	774
1883	118,734	93,759	8,246,522,055	43,878,284,320	72,444,857	76,456	407,734	773
1884	124,303	101,926	8,574,460,432	45,863,411,398	80,277,597	75,168	405,064	788
1885	127,099	109,606	8,644,234,439	49,253,177,841	89,526,808	73,780	422,151	817
1886	133,369	110,868	9,328,106,528	54,358,139,273	96,365,303	76,027	444,993	869
1887	145,409	121,453	10,369,564,383	62,574,067,106	104,038,196	76,325	463,814	857
1888	154,730	126,644	11,159,162,407	66,053,554,661	112,830,405	77,350	458,877	891
1889	160,835	133,781	11,672,476,293	69,519,467,029	128,186,659	77,653	463,754	958
1890	163,597	134,949	11,847,785,617	76,207,947,498	142,024,571	75,751	487,245	1,052
1891	168,402	148,841	12,844,243,881	81,073,784,121	161,989,694	79,642	502,705	1,088
1892	171,563	153,998	13,362,898,299	88,241,050,225	179,062,188	82,285	543,365	1,163
1893	176,461	160,660	14,229,101,084	93,588,111,833	203,195,521	83,809	551,232	1,265
1894	178,708	162,454	14,289,445,893	80,335,104,202	226,021,821	81,333	457,252	1,391
1895	180,657	168,386	12,188,446,271	85,227,515,891	240,638,449	68,572	479,490	1,429
1896	182,776	168,488	13,049,007,233	95,328,360,278	246,062,726	71,705	523,832	1,460
1897	184,428	170,429	12,256,939,647	95,139,022,225	266,305,885	66,874	519,079	1,563
1898	186,396	170,893	13,379,930,004	114,077,576,305	272,714,017	72,462	617,810	1,596

[1] This table may be found on p. 253, Part II, of the testimony taken by the Joint Congressional Commission on Postal Affairs.

TABLE XIII.

SUMMARY SHOWING EARNINGS FROM MAIL, FREIGHT, AND PASSENGERS IN UNITED STATES.[1] [1873-1898.]

[The mileage used in the computation of this table is the mileage for which reports of revenue were obtained, and not the absolute mileage given in column 1.]

Year.	Traffic Revenue Accruing from Services Named.			Traffic Revenue per Mile of Line Operated—for Services Named.			Rates Received for Mileage Unit of Services Named.			
									Per Ton of Mail per Mile.	
	Passenger.	Freight.	Mail.	Passenger.	Freight.	Mail.	Per Passenger per Mile.	Per Ton of Freight per Mile.	Including Postal-Car Compensation.	Excluding Postal-Car Compensation.
							Cents.	Cents.	Cents.	Cents.
1873.....	$130,861,702	$389,035,508	$6,522,725	$1,975.66	$5,873.39	$130.46	.....	.....	26.420	.....
1874.....	133,425,454	379,466,935	7,573,627	1,926.08	5,477.85	138.03	.....	.....	23.732	.....
1875.....	130,951,717	363,960,234	8,153,554	1,824.88	5,071.98	136.00	.....	.....	23.866	.....
1876.....	127,434,225	361,137,376	8,686,358	1,733.61	4,912.90	134.16	.....	.....	23.975	.....
1877.....	116,185,880	347,704,548	9,018,844	1,567.71	4,691.61	130.78	.....	.....	23.960	.....
1878.....	115,427,022	365,466,061	9,210,268	1,461.84	4,628.50	129.68	.....	.....	23.167	.....
1879.....	152,774,054	386,676,108	9,562,137	1,614.80	4,702.77	128.87	.....	.....	21.522	.....
1880.....	144,101,709	416,145,758	9,703,141	1,641.59	4,740.67	125.54	2.510	1.290	20.596	20.195
1881.....	178,681,510	488,853,099	10,574,672	1,904.74	5,211.16	132.07	2.251	1.191	18.969	17.694
1882.....	209,798,900	515,830,426	11,293,573	1,996.13	4,907.80	138.24	2.218	1.184	17.866	16.017
1883.....	222,809,222	557,484,735	12,915,639	1,941.03	4,856.59	137.75	2.390	1.191	17.828	15.879
1884.....	226,158,550	532,117,731	14,185,720	1,881.57	4,427.03	139.18	2.217	1.093	17.670	15.794
1885.....	215,927,217	522,019,210	15,383,140	1,746.46	4,222.18	140.35	2.113	1.000	17.182	15.460
1886.....	228,771,865	566,085,340	15,888,290	1,761.97	4,359.88	143.31	2.065	.980	16.487	14.793
1887.....	257,596,734	639,712,732	17,236,659	1,812.09	4,500.07	141.92	2.111	.970	16.567	14.980
1888.....	270,702,238	651,895,752	18,356,233	1,798.43	4,330.92	144.94	2.069	.944	16.268	14.684
1889.....	282,963,003	686,769,645	20,069,669	1,824.53	4,428.25	150.02	2.239	.955	15.656	14.174
1890.....	281,064,164	714,464,277	21,258,428	1,797.04	4,568.07	157.53	2.167	.941	14.968	13.545
1891.....	302,772,948	736,793,699	23,954,253	1,877.37	4,568.55	160.93	2.142	.895	14.787	13.371
1892.....	308,954,696	799,316,042	25,881,008	1,902.47	4,921.99	168.06	2.126	.898	14.453	13.042
1893.....	325,123,210	829,053,861	28,393,738	1,905.14	4,858.04	176.73	2.108	.878	13.973	12.549
1994.....	308,384,858	699,490,913	30,114,725	1,755.27	4,001.55	185.37	1.986	.860	13.323	11.991
1895.....	276,530,688	729,993,462	31,545,392	1,555.76	4,130.24	187.34	2.040	.839	13.109	11.775
1896.....	291,442,916	786,615,837	31,901,124	1,601.48	4,343.83	189.34	2.019	.806	12.964	11.655
1897.....	276,036,993	772,849,314	33,730,037	1,506.06	4,239.64	197.91	2.022	.798	12.665	11.361
1898.....	292,878,565	876,727,719	34,273,431	1,586.15	4,773.46	200.55	1.973	.753	12.567	11.254

[1] This table may be found on p. 253, Part II, of the testimony taken by the Joint Congressional Commission on Postal Affairs.

INDEX

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